THE UNIVERSITY OF ALBERTA

GRADE ONE CHILDREN'S CONCEPTS OF A WORD

by

© MICHAEL LYSAKOWSKI

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

OF MASTER OF EDUCATION

DEPARTMENT OF ELEMENTARY EDUCATION

EDMONTON, ALBERTA

FALL, 1981

Microfilm

THE UNIVERSITY OF ALBERTA

RELEASE FORM

NAME OF AUTHOR Michael Lysakowski

TITLE OF THESIS Grade One Children's Concepts of a Word

DEGREE FOR WHICH THESIS WAS PRESENTED Master of Education

YEAR THIS DEGREE GRANTED 1981

Permission is hereby granted to THE UNIVERSITY OF ALBERTA LIBRARY to reproduce single copies of this thesis and to lend or sell such copies for private, scholarly or scientific research purposes only.

The author reserves other publication rights, and neither the thesis nor extensive extracts from it may be printed or otherwise reproduced without the author's written permission.

(Signed) Michael Lysakowski

PERMANENT ADDRESS:

803 Lee Ridge Road
Edmonton, Alberta
T6K OP9

DATED September 30 1981

THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled Grade One Children's Concepts of a Word submitted by Michael Lysakowski in partial fulfilment of the requirements for the degree of Master of Education.

Jean E. Robertson
Supervisor

Date September 30, 1981.

Dedicated to my

Mom and Dad

ABSTRACT

The purpose of this study was to explore four aspects of grade one children's concepts of a word: spoken word consciousness, awareness of the speech-print relationship, awareness of visual word boundaries, and written word consciousness. This study also investigated a possible correlation for each of three of these aspects (spoken word consciousness, awareness of the speech-print relationship, awareness of visual word boundaries) with reading achievement, sex, and age. A four-part instrument, the Concept of a Word Test, was used to collect student responses related to each of the four aspects of concept of a word.

The student sample consisted of 60 children from nine classrooms in a large urban Alberta school system. There were 10 girls and 10 boys in each of three reading achievement groups (low, average, high), randomly selected on the basis of the Gates-MacGinitie Reading Tests (Level A, Form 1). Nine of the 60 children received all parts of the Concept of a Word Test while the remaining 51 completed only the parts for which scores could be determined. This test was individually administered to each child near the end of the eighth month of the grade one year. The responses of the nine children were reported descriptively and the scores obtained for the 60 children were used for statistical analyses.

Although the responses of the nine children varied, most of the children tended to equate a word with an object and/or an action or with saying something and did not see the word as an abstract entity. Contrary to previous research findings, the function words were more

often recognized as words than were the verbs. A few of the children were unable to demonstrate an understanding of the speech-print relationship. Only one-third of the children were able to accurately mark the word boundaries in three sentences printed without the conventional spaces between the words although most of them correctly marked the word boundaries in a sentence printed in the conventional manner.

A Pearson product-moment correlation indicated a positive relationship between each of three aspects (spoken word consciousness, awareness of the speech-print relationship, awareness of visual word boundaries) of the grade one children's concepts of a word and their reading achievement. A two-way analysis of variance indicated significant differences among the reading achievement groups on awareness of the speech-print relationship and on awareness of visual word boundaries. The Scheffé Multiple Comparisons of Means indicated a significant difference between the low achieving readers and the average and high achieving readers on awareness of the speech-print relationship. There were significant differences among each of the three groups on awareness of visual word boundaries.

Implications for beginning reading instruction and for further research were suggested.

ACKNOWLEDGEMENTS

I would like to express my sincere appreciation and gratitude to the many people whose interest and encouragement made the writing of this thesis possible.

I am especially indebted to Dr. Jean Robertson, my thesis supervisor and chairman of the committee, for whom I have the greatest respect and admiration. She gave generously of her time and provided invaluable guidance by sharing her knowledge and expertise.

Thank you to Dr. Grace Malicky and Dr. Lorraine Wilgosh, members of the committee, for the time devoted to the reading of this thesis and for their constructive questions and comments.

Thank you to Dr. Susan Therrien for graciously answering my many questions about the statistical aspects of this research and to Dr. Steve Hunka for his assistance and for the services provided by the Division of Educational Research.

Thank you to the principals, the grade one teachers and their students whose cooperation made the collection of data an enjoyable part of this study.

Thank you to Paul and Judith Ammann for their assistance in scoring the Gates MacGinitie Reading Tests and for their constant support and encouragement.

Thank you to Sharon Sommers for the interest shown in this project and for her comments and thoroughness in proofreading this study at various stages.

Thank you to Margaret Voice for the conscientious and professional manner in which she typed the thesis.

Thank you to my wife, Sheryll, for her assistance throughout this endeavour and for her encouragement when it was most needed, but especially for the many sacrifices made during the last year.

TABLE OF CONTENTS

CHAPTER		PAGE
1.	INTRODUCTION	1
	Problem	3
	Purpose	5
	Definitions	6
	Research Question and Hypotheses	6
	Experimental Design	8
	Assumptions	10
	Limitations and Delimitations	10
	Significance	11
	Overview	11
2.	REVIEW OF THE LITERATURE	13
	Development of Linguistic Awareness	13
	Word Perception	14
	From Cognitive Confusion to Growth of Cognitive Clarity	19
	Metalinguistic Awareness of Beginning Readers	23
	Children's Concepts of a Word	28
	Word Consciousness	28
	The Speech-Print Relationship	37
	Segmentation of Speech	41
	Segmentation of Print	49
	Segmentation of Speech and Print	53
	Factors Related to Children's Concepts of a Word	56
	Summary	63

CHAPTER		PAGE
3.	DESIGN OF THE STUDY	65
	Sample	65
	Instruments	66
	Gates-MacGinitie Reading Tests	66
	Concept of a Word Test	69
	Test A	69
	Test B	71
	Test C	72
	Test D	73
	The Pilot Study	74
	Procedure of the Main Study	75
	Data Analyses	76
	Summary	77
4.	FINDINGS OF THE STUDY	79
	Research Question	79
	Spoken Word Consciousness (Test A)	80
	Awareness of the Speech-Print Relationship (Test B)	104
	Awareness of Visual Word Boundaries (Test C)	111
	Written Word Consciousness in Sentence Context (Test D)	114
	Research Hypothesis One	118
	Research Hypothesis Two	124
	Scheffé Multiple Comparisons	128
	Discussion	131
	Summary	132

CHAPTER PAGE

Relevant to the Research Question 132

Relevant to Research Hypothesis One 133

Relevant to Research Hypothesis Two 133

5. SUMMARY, FINDINGS, CONCLUSIONS, IMPLICATIONS, AND SUGGESTIONS FOR FURTHER RESEARCH 134

Summary 134

Findings 135

Research Question 135

Research Hypothesis One 139

Research Hypothesis Two 139

Conclusions 140

Implications 142

Suggestions for Further Research 146

Concluding Statement 148

REFERENCES 149

APPENDIX A. TESTS A, B, C, AND D OF THE CONCEPT OF A WORD TEST 157

APPENDIX B. CHILDREN'S (N = 9) EXPLANATIONS OF RESPONSES TO THE CONCEPT OF A WORD TEST 162

APPENDIX C. CHILDREN'S (N = 60) SCORES ON THE GATES-MACGINITIE READING TESTS AND THE CONCEPT OF A WORD TEST 187

LIST OF TABLES

TABLE		PAGE
3.1	Children's (N = 60) Scores on Gates-MacGinitie Reading Tests (Level A, Form 1, 1979)	67
3.2	Concept of a Word Test Administration	75
4.1	Summary of Children's (N = 60) Answers to "Is _____ a Word?"	81
4.2	Summary of Children's (N = 9) Explanations of Responses to Nouns when Asked "Why is _____ (not) a Word?" (Test A)	84
4.3	Summary of Children's (N = 9) Explanations of Responses to Verbs when Asked "Why is _____ (not) a Word?" (Test A)	86
4.4	Summary of Children's (N = 9) Explanations of Responses to Function Words when Asked "Why is _____ (not) a Word?" (Test A)	89
4.5	Summary of Children's (N = 9) Explanations of Responses to an Adjective and Adverb when Asked "Why is _____ (not) a Word?" (Test A)	93
4.6	Summary of Children's (N = 9) Explanations of Responses to Phrases when Asked "Why is _____ (not) a Word? (Test A)	94
4.7	Summary of Children's (N = 9) Responses to "What is a Word?" (Spoken)	99
4.8	Summary of Responses to "Give Me a _____ Word" . . .	100
4.9	Pupil Scores on Test B, Awareness of the Speech-Print Relationship	105
4.10	Summary of Explanations of White Spaces between Words	113
4.11	Summary of Responses for Choices of Words for Sentence One (When is the birthday party?)	115
4.12	Summary of Explanations for Choices of Words for Sentence One (When is the birthday party?)	116
4.13	Summary of Responses for Choices of Words for Sentence Two (Jack's puppy is a very friendly pet.)	119

TABLE		PAGE
4.14	Summary of Explanations for Choices of Words for Sentence Two (Jack's puppy is a very friendly pet.)	120
4.15	Correlation Coefficients between Concept of a Word Scores and Reading Achievement Scores, Sex and Age	123
4.16	Two-way Analysis of Variance of Spoken Word Consciousness (Test A) by Sex and Reading Achievement Groups	125
4.17	Two-way Analysis of Variance of Four Measures of the Speech-Print Relationship (Test B) by Sex and Reading Achievement Groups	126
4.18	Two-way Analysis of Variance of Awareness of Visual Word Boundaries (Test C) by Sex and Reading Achievement Groups	127
4.19	Scheffé Multiple Comparisons of Means between Reading Achievement Groups on Four Measures (B_1, B_2, B_3, B_4) of the Speech-Print Relationship (Test B)	129
4.20	Scheffé Multiple Comparisons of Means between Reading Achievement Groups on Awareness of Visual Word Boundaries (Test C)	130

Chapter 1

INTRODUCTION

> Six year olds bring a sophisticated spoken language system to the first grade classroom. In learning to read, however, children must first discover how elements of this internalized linguistic system are represented in writing. They must effect a match between components of their spoken language and the forms on the page. (Morris, 1980, p. 97)

Traditionally, reading instruction has consisted of an accumulation of teaching practices based upon the nature of the reading process as seen from an adult perspective with little regard to the perceptions children have toward reading and learning to read. In helping to effect a match between the spoken and written language of children, it would seem most efficient to base beginning reading and writing instruction on children's ability to use spoken language as well as on their concepts of linguistic terms and knowledge of the conventions of print. One such concept would be the child's understanding of a word.

Henderson (1980) contends that "an understanding of what children know about words is crucial for effective instruction in reading and writing" (p. 2). Although he admits that children learn letters and words directly from exposure to written language, Henderson claims that what they can learn "depends upon the conceptual framework they bring to the task" and that "almost any methodology is likely to succeed" if "instruction is paced to the child's underlying conceptual grasp" (p. 2).

That the beginning reader first needs to learn that there is a correspondence between speech and print and then more specifically what the correspondence between a spoken word and its printed correlate is, has been suggested by many researchers.

In 1937, Ruth Strang stated that "one of the first steps in acquiring reading ability is to learn that printed words have meaning and significance" (p. 285). Magdalen Vernon (1960) concurred with Strang by specifying that the beginning reader should "learn that printed symbols do represent the words which he uses in speech" and that "it seems essential that he should reach this stage before trying to proceed further" (p. 188).

In addition, the reader must be able to learn to integrate understanding of print into his* knowledge of language so that relationships between speech and print are identified. In stressing these understandings more recently, Ehri (1978) has made statements beyond those of Strang and Vernon.

> The beginning reader appears to possess the phonological, syntactic, and semantic equipment needed to process the meanings of printed sentences whose structure and content are familiar to him in speech. What remains for him to learn is how to integrate printed language into his linguistic system so that he can use his knowledge to interpret graphic cues.
>
> . . . if printed language receives prior analysis into sequences of abstract word units whose linguistic identities are recognized, then its spoken form becomes evident and sound values can be related to letters where there exists correspondences. This suggests that what the beginner needs to learn is how to convert graphic cues to recognizable words. (p. 10)

---

*For the sake of readability, he is being used in place of the awkward he/she.

In particular, Weintraub (1971) proposes that the visual perception of a word as a unit in the text is essential to beginning reading.

> Possibly children do not learn to recognize words because they do not understand that words are printed as units. Often they fail to match written with spoken words because they are unaware that words are bounded by white spaces. Besides, they may confuse letters with words. (p. 192)

Clay (1969) when addressing herself to reading errors and the development of self-correction behaviour in beginning readers expressed a similar view.

> Somehow the word unit must be isolated from the flow of speech and matched to a word pattern located in the text, resulting in a sequential co-ordinating of visual locating and speech impulse. (p. 53)

It would seem then that although children have a sophisticated oral language, children learning to read must understand that there is a correspondence between oral language and written language and must understand the nature of this correspondence. Their concepts of a word both in speech and written language are based on their understanding of the speech-print relationship which is a prerequisite to being able to convert graphic cues to recognizable words.

Problem

Current research (Downing, 1970a, 1970b, 1976; Downing and Oliver, 1973-1974; Johns, 1977, 1980; Mickish, 1974; Morris, 1980; Papandropoulou and Sinclair, 1974; Reid, 1976; Templeton and Spivey, 1980) makes it clear that although grade one children come to school with a sophisticated level of language fluency, they are not prepared to deal with the linguistic terms and concepts associated with

beginning reading and writing instruction. Children pass through an initial stage of "cognitive confusion" before they are able to understand the technical jargon of the "reading instruction register" (Downing, 1976). One important concept children must acquire is that of a word. Goodman (1977) notes this when he says, "it is no great revelation to first grade teachers that children frequently do not have any idea what words are" (p. 32). Due to the importance of developing children's awareness of the one-to-one correspondence between written and spoken words, it would be beneficial to investigate further grade one children's concepts of a word. By investigate is meant to describe grade one children's concepts of a word and to explore the relationship of their concepts of a word to reading achievement, age, and sex.

Because children advance in their knowledge of words through conceptual stages (Henderson, 1980) and the concept of "the word" undergoes "a long and slow elaboration" (Papandropoulou and Sinclair, 1974, p. 249), it is clear that the first grade teacher cannot assume that all the children will understand him when he talks about words and their printed representation. Also, it cannot be assumed that these concepts can be taught quickly and easily, especially since "printed word units do not correspond to the way the child thinks the utterance should be divided" (Holden and MacGinitie, 1972, p. 556). For these reasons, an understanding of the concepts children have of a word is crucial for planning effective curriculum and instruction in reading and writing.

As a result, the problem addressed by this study was to describe

grade one children's concepts of a word and to explore further the relationships of their concepts of a word to reading achievement, age, and sex.

Purpose

The purpose of this study was to describe grade one children's concepts of what a word is and to explore the relationships of their concepts to reading achievement (as determined by the Gates-MacGinitie Reading Tests), sex, and age.

The following questions were posed:

1. What concepts of a word do grade one children have?
2. How do these concepts differ?
3. Do these concepts differ on the following four aspects:
    a. Spoken word consciousness
    b. Awareness of the speech-print relationship
    c. Awareness of visual word boundaries
    d. Written word consciousness?
4. Is there a significant relationship between the first three aspects of grade one children's concepts of a word and:
    a. Reading achievement
    b. Sex
    c. Age?
5. Do pupils learning to read in grade one and grouped by reading achievement, differ significantly in the first three aspects of concept of a word?

Definitions

Word - a speech utterance which consists of a base form, and which may or may not be accompanied by one or more affixes. Such a speech utterance symbolizes a particular meaning and may not be subdivided without losing meaning (Wilson, 1973, p. 3). In print, a word may be distinguished by the space preceding and following it.

Concept - a mental impression generalized from particular experiences which can be modified or refined as a result of further experiences (McLaughlin, 1978, p. 4).

Low achieving reader - a student who scores more than one standard deviation below the mean on the Gates-MacGinitie Reading Tests.

Average achieving reader - a student who scores within and including one standard deviation of the mean on the Gates-MacGinitie Reading Tests.

High achieving reader - a student who scores more than one standard deviation above the mean on the Gates-MacGinitie Reading Tests.

Research Question and Hypotheses

The following research question was formulated from questions one, two, and three posed under the Purpose.

Will there be differences in four aspects (spoken word

consciousness, awareness of the speech-print relationship, awareness of visual word boundaries, written word consciousness) of grade one children's concepts of a word which can be observed, and reported descriptively? The analyses will not be formal statistical analyses.

The following two research hypotheses were formulated from questions four and five respectively, posed under the Purpose, for which scores for spoken word consciousness, awareness of the speech-print relationship, and awareness of visual word boundaries could be obtained for statistical analyses.

1. There will be a positive significant relationship between grade one children's concepts of a word, measured by their scores for spoken word consciousness, awareness of the speech-print relationship, and awareness of visual word boundaries, and:

   a. Reading achievement

   b. Sex

   c. Age.

2. There will be significant differences in the scores of grade one children, grouped by reading achievement, on each of three aspects (spoken word consciousness, awareness of the speech-print relationship, awareness of visual word boundaries) of concept of a word. That is, the higher the children's reading achievement the greater will be their spoken word consciousness, their awareness of the speech-print relationship, and their awareness of visual word boundaries.

Experimental Design

Level A, Form 1 of the Gates-MacGinitie Reading Tests was group administered to each of nine grade one classes from a large urban Alberta school system. After calculating the mean and standard deviation, the children were grouped as low, average, and high achieving readers on the basis of sex and the results of the Gates-MacGinitie Reading Tests. Ten girls and 10 boys were randomly selected from each of the three reading achievement groups to give a total sample of 30 girls and 30 boys. The children's ages were recorded from a computer print-out provided by the school system.

The investigation of grade one children's concepts of a word was carried out through the Concept of a Word Test, a modified four-part composite of instruments (Tests A, B, C, and D) used in four research studies (Mickish, 1974; Morris, 1980; Papandropoulou and Sinclair, 1974; Templeton and Spivey, 1980) (see Appendix A). There wasn't a one-to-one correspondence between Tests A, B, C, and D and each of those used in the four studies. Test D was developed by the researcher.

Test A assessed awareness of spoken words in isolation, asked for a definition of a word, and asked for an example of a long, a short, an easy, a hard, and an invented word. Test B assessed awareness of the speech-print relationship based on four measures: ability to point to words as one reads aloud, ability to recognize individual words within a single line, ability to recognize individual words within a four-line poem, and ability to learn sight words from a short reading experience. Test C assessed awareness of

visual word boundaries. Test D assessed consciousness of single words and their features when written in sentence context.

A pilot study was conducted to refine the wording of the questions on the Concept of a Word Test, to test administrative procedures, and to determine approximate times needed to complete the various tasks.

All the children in the sample of 60 were individually administered Test B and parts of Tests A and C for which scores on spoken word consciousness (Test A), awareness of the speech-print relationship (Test B), and awareness of visual word boundaries (Test C) could be obtained (see Appendix C). The scores from these tests were tabulated for each child and were analyzed statistically. For research hypothesis one, the scores for each test were correlated with reading achievement, sex, and age. For research hypothesis two, a two-way analysis of variance (reading achievement by sex) was carried out to determine if there were significant differences among the three reading achievement groups or between the girls and the boys on the three aspects (spoken word consciousness, awareness of the speech-print relationship, awareness of visual word boundaries) of concept of a word. Where significant differences were found, the Scheffé Multiple Comparisons of Means was used to determine the specific source of the differences.

Nine children in the sample of 60 were individually administered the complete Concept of a Word Test (that is, all parts of Tests A, B, C, and D). In addition to scores from Test B and parts of Tests A and C being obtained, additional information was elicited about each

child's concept of a word by having him give an explanation of his answers from the scored parts of Tests A and C as well as respond to further questioning about spoken words (Test A), visual word boundaries (Test C), and written words in a sentence context (Test D) (see Appendix B). These responses were reported descriptively to answer the research question.

The session with each of the 60 children was tape-recorded.

Assumptions

Certain assumptions underlaid this study. It was assumed that all tasks in the Concept of a Word Test were investigating aspects of the children's concepts of a word. It was also assumed that each of the nine children selected to perform additional tasks and provide explanations were able to verbalize their concepts of a word adequately enough to supply the examiner with the data needed.

Limitations and Delimitations

Not all aspects of concept of a word have been explored. Other aspects not identified or systematically measured, may be elements confounding present results. Also, this study did not control for variations in reading programs used by the teachers in their classrooms. Some programs may have helped to develop the child's concept of a word more than others. Analyses of the data not statistically treated involved more subjective judgements than the data for which scores could be determined. Lastly, each child's level of cognitive functioning (preoperational, transitional, concrete operational),

which some researchers (e.g., Papandropoulou and Sinclair, 1974; Templeton and Spivey, 1980) have found to be related to children's concepts of a word, has not been investigated as a separate factor.

Significance

The findings of the present study may have some generalizability to beginning reading instruction of grade one children in similar populations in that information has been provided which can assist teachers in planning more effective curriculum and instruction in reading and writing. Teachers may be encouraged to examine assumptions made about beginning readers' knowledge of linguistic terms in published reading programs and in their own classroom work. More specifically, helping children to develop a concept of a word may assist them in benefitting from formal reading instruction and in particular, in the analysis of words into their phoneme-grapheme parts.

Overview

The remainder of this thesis is divided into four chapters. Chapter two is organized into two sections. Section one offers a discussion of the development of linguistic awareness which includes comments about word perception. Section two reviews the literature related to various aspects of children's concepts of a word. Chapter three presents the design, sample, instruments, procedure, and analyses used in the study. Chapter four reports and discusses the findings relevant to the research question and the two research

hypotheses. Chapter five provides a summary of the study and its findings, conclusions, implications for beginning reading instruction, and suggestions for further research.

Chapter 2

REVIEW OF THE LITERATURE

This chapter will review the literature relevant to this investigation of grade one children's concepts of a word. Included are writings discussing theoretical backgrounds important to this study and research pertinent to the solution of the problem under consideration.

The first section of this chapter will deal with the development of linguistic awareness and will include comments about word perception. The second section will review research which has investigated various aspects of children's concepts of a word: word consciousness, the speech-print relationship, and segmentation of speech and print.

Development of Linguistic Awareness

Children who are beginning formal reading instruction are faced with what Downing (1976) has termed the "reading instruction register" or "the special language used to talk about reading and its relationship to speech" (p. 763). The child's ability to understand this "reading instruction register" has been termed "metalinguistic awareness" (Cazden, 1972). Investigations by Reid and others, to be reported later, have indicated that children have not had to consciously analyze speech prior to formal reading instruction and that children often become very confused with terms like "letter," "sound," "word," and "sentence" used in the "reading instruction

register." Although metalinguistic awareness usually develops as children try to make sense of reading instruction, some children are unable to understand the "reading instruction register" and remain in a state of "cognitive confusion" (Vernon, 1960), lagging behind others in their reading achievement.

This section is divided into three parts. The first part deals with word perception as it relates to children's concepts of a word. The second describes the growth of cognitive clarity from a state of cognitive confusion while the third discusses metalinguistic awareness of beginning readers and presents some relevant research.

Word Perception

The following comments are important to the present study in that several factors involved in word perception may contribute to the problems young children experience when they begin formal reading instruction and are required to consciously identify individual word units.

Johnson (1965) views the perception of a printed word as involving three stages. The visual sensations received are first identified as being representative of a word and then representative of certain speech sounds. Finally, the word is perceived as a symbol of the intended meaning. According to Johnson, "to reach this final stage, the reader is obviously manipulating the present sensory data and images or memories from his past experiences in the context of the setting of the word until he has arrived at a meaning which is satisfying to him" (p. 70). Recognition can be almost immediate, as with familiar words, or may require considerable effort. Because the

focus of the present study was related to the first stage of word perception as described by Johnson, common, familiar words were used in the testing instruments to facilitate completion of the perceptual act. It was expected that the present study would show that children are at different stages with different words and that they use all these stages. For example, a child is probably at a higher stage of word perception with a word that he knows well than with an unfamiliar word.

The preschool child demonstrates an increasing understanding of his language by the sophisticated manner in which he speaks. Such studies as by Clark (1980) and Slobin (1980) provide evidence that children begin to reflect on certain aspects of language as early as age two. Although the preschool child is aware of language at an unconscious level, "it is no way apparent [to him] that language consists of words, that words vary in length" or "that words are built up from parts" (Lundberg, 1980, p. 84). The immature word concept of the preschool child has been noted by many researchers (e.g., Holden and MacGinitie, 1972; Huttenlocher, 1964; Papandropoulou and Sinclair, 1974; Templeton and Spivey, 1980) providing evidence that children will have difficulty consciously segmenting sentences into component words. Because children are at various stages in their understanding of a word, it was assumed by the researcher that some of the grade one children in the present study would be looking at words like preschoolers while others would have a more sophisticated view of words. In addition, there are a number of factors which contribute to the difficulty of learning to segment language into

words and to becoming aware of words as units.

A discussion of the factors which may contribute to children's difficulty in conventional word segmentation has been aptly expressed by Wilson (1973). The following review of these factors is based on her perceptions.

One such factor may be the residual effect of early childhood perceptions. During the early stages of language learning, children respond to speech syncretically. "In perception, in thinking, and in activity, the child tends to merge the most diverse elements into one unarticulated image on the strength of some chance impression" (Vygotsky, 1934/1962, p. 60). Just as there is little differentiation of objects, people, actions, and feelings, speech utterances reflect a lack of consistency in thought and an unstable, uncomprehensive view of relationships. Wilson (1973) notes two principal consequences which may result at this stage. One is that speech utterances are not perceived as consisting of separable word units because it is the sound contours and intonational patterns of sentences that carry meaning at this level rather than individual words. If this is so, there will be young children in this study who are identifying parts of sentences and even whole sentences as words. Secondly, the child constructs his own primitive perceptual schemata based on his own varied experiences and one or two features from a number of relevant or non-relevant features. With an increasing ability and desire to adapt his primitive schemata to conventional, adult schemata, the child's perceptions will be reorganized and refined. Although the child will begin to distinguish words as separate units, such analysis

may not be complete upon grade one entrance to school and the beginning of formal reading instruction.

In addition, different word classes will emerge as a perceptual "word" category at different times. Although the child may be beyond the syncretic level of thinking, the process by which he forms generalizations only resembles the conceptual thinking of the adult. Vygotsky (1934/1962) has described the transition from thinking in complexes to true concept formation as pseudo-concepts.

> Pseudo-concepts predominate over all other complexes in the preschool child's thinking for the simple reason that in real life complexes corresponding to word meanings are not spontaneously developed by the child. The lines along which a complex develops are predetermined by the meaning a given word already has in the language of adults. (p. 67)

In an experimental setting, the child produces a pseudo-concept when he "surrounds a sample with objects that could just as well have been assembled on the basis of an abstract concept" (p. 66). A child may form a complex on the basis of word meanings supplied by an adult, but because he is not able to imitate the thinking process involved in understanding the concept, the child may misinterpret the semantic components of a word, or may misidentify its syntactic function. For example, a child who correctly says, "the glass broke" may also use 'broke' in an inappropriate manner (e.g., "His pants broke"). The child's overgeneralized category for 'broke' does not yet match the adult concept and will not until the child has added further semantic features specific to this category (Lindfors, 1980). At the same time, a child whose category for 'teeth' semantically matches that of an adult may misidentify its syntactic function and say, "I didn't mean to teeth her arm" instead of "I didn't mean to bite her arm."

Low content words such as auxiliary verbs, articles, prepositions, and conjunctions are learned less rapidly and perceived less readily than high content words such as nouns and verbs. Also, "to assume that just because the child uses words and grammatical constructions acceptably he has a commensurate understanding of them is dangerous" (Robertson, 1968, p. 97). As a result of their varied levels of understanding, children beginning formal reading instruction may not perceive all words as belonging to the category "word."

The conscious separation of utterances into words may also be obscured by the phonological rules which operate across word boundaries. "We are so accustomed to the rather rudimentary analysis of our speech, which is involved in our writing system, that we are likely to think of it as an immediately obvious feature of the nature of things" (Alston, 1964, p. 60). The spaces between words in traditional orthography are based upon mainly semantic, syntactic, and conventional units rather than identifiable pronunciation units (Hockett, 1958; Lefevre, 1964). Consequently, the preschool child's perception of word boundaries, based upon pronunciation units of speech, may not correspond to conventional segmentation of language nor to an adult's perception of words. The fact that young children may view language as being only partially differentiated into single words "may be a factor in beginning reading difficulties, since the divisions of words on a page may not correspond to the sound groupings the child hears and uses" (Stone and Church, 1968, p. 406).

This discussion of word perception is related to the present study in that there is a close relationship between word perception

and concept of a word. Such factors as a syncretic view of speech, formation of pseudo-concepts, differential salience of words and word classes, and phonological rules which operate across word boundaries may obscure the identification of word segments in speech and may lead to inaccurate perceptions about words in this study. Also, beginning readers will be at different stages of word perception with different words. The influence of these factors plus the beginning reader's lack of experience with printed words may be reflected in an immature concept of a word.

From Cognitive Confusion to Growth of Cognitive Clarity

In her extensive review of all the related research on the causes of reading disability, Backwardness in Reading, Vernon (1960) concluded that "the fundamental and basic characteristic of reading appears to be cognitive confusion and lack of system" (p. 71). In defining "cognitive confusion" Vernon explains that

> The child with real reading disability . . . may indeed have learnt that printed words have some relation to spoken words; and, with a few simple words, he has memorized the spoken word that corresponds to a particular shape. But he does not seem to understand why; it might be quite an arbitrary association. He appears hopelessly uncertain and confused as to why certain successions of printed letters should correspond to certain sounds in words. (pp. 47-48)

Vernon hypothesizes that "to make this association demands a particular type of reasoning process" and that "the fundamental problem appears to be a failure in development of this reasoning process" (p. 48). This "failure in development of this reasoning process" does not only refer to the child's inability to understand letter and sound correspondences, as referred to in Vernon's definition of

cognitive confusion, but characterizes any reader who "remains in a state of confusion over the whole [reading] process" (p. 63). Vernon adds that

> It is extraordinarily difficult for the teacher or the psychological investigator to analyse or to understand the nature of the failure. Most children seem to find no great difficulty in developing the necessary reasoning processes, provided that they go slowly and are given plenty of help and practice. These children alone seem to have become 'stuck', and to be incapable of further progress. Though we shall endeavour to discover something about the nature and cause of the failure, it cannot be said that anyone fully understands it. (1960, p. 48)

On the other hand Vygotsky (1934/1962) said, "it is the abstract quality of written language that is the main stumbling block" (p. 99). Perhaps it is the abstract nature of written language which leads to cognitive confusion.

Research by Reid (1966) and several others (e.g., Downing, 1970a, 1970b, 1971-1972; Francis, 1973; Johns, 1980) provides evidence that cognitive confusion in learning to read is a typical, universal phenomenon, but it is also evident that children who remain in a state of cognitive confusion will not progress satisfactorily in reading. According to Downing (1976),

> Cognitive confusion is a natural outcome of normal environmental conditions which cannot be avoided. Speech is not segmented into the units which have to be perceived in learning to read. The act of reading cannot be observed because it goes on in the head. Therefore children cannot observe the task of reading and imitate it (although they try to do so). Nevertheless, cognitive confusion is hazardous because our society has created a critical period for learning to read. A successful beginning must be made at the first grade level otherwise the consequences are serious for the child. Cognitive confusion, if it persists too long, may prevent the child from understanding the task of learning to read sufficiently well to beat the deadline of the end of grade one. (p. 764)

Based on Vernon's description of cognitive confusion in the disabled reader, Downing (1971) hypothesized "that the normal reader would exhibit, in contrast, cognitive clarity in this 'particular type of reasoning process' involved in learning to read" (p. 115). He should understand the correspondence between a spoken word and a written word as well as understand why certain letter sequences correspond to certain sounds in words. It should be noted that although "there is a phonemic foundation for the writing system of English," the beginning reader has a much more complicated system to contend with than at first appears (Francis, 1958, p. 449). That "the English writing system is highly complex and frequently inconsistent" (p. 478) becomes apparent upon examination of the devices used in English writing, some systematic and others arbitrary, which add "to its perceptible but much distorted phonemic foundation" (p. 443). For example, grapheme combinations used as morphograms ("as unchanging representations of the same morphemes regardless of morphophonemic variations in the spoken language") represent a systematic device used in English which aids in spelling but hinders pronunciation, e.g., marine, mariner (p. 444). Another example is the "representation of phoneme combinations by arbitrary grapheme combinations" such as in fair, gauge, and shoe (p. 445). Thus, the nature of the English writing system itself may contribute to the initial state of cognitive confusion experienced by the beginning reader. Downing hypothesized further that the sequence from an early state of cognitive confusion to a later stage of cognitive clarity in beginning reading should be an observable developmental process.

Downing (1979) has summarized his cognitive clarity theory in eight postulates:

1. Writing or print in any language is a visible code for those aspects of speech that were accessible to the linguistic awareness of the creators of that code of writing system;

2. this linguistic awareness of the creators of a writing system included simultaneous awareness of the communicative function of language and certain features of spoken language that are accessible to the speaker-hearer for logical analysis;

3. the learning-to-read process consists in the rediscovery of (a) the functions and (b) the coding rules of the writing system;

4. their rediscovery depends on the learner's linguistic awareness of the same features of communication and language as were accessible to the creators of the writing system;

5. children approach the tasks of reading instruction in a normal state of cognitive confusion about the purposes and technical features of language;

6. under reasonably good conditions, children work themselves out of the initial state of cognitive confusion into increasing cognitive clarity about the functions and features of language;

7. although the initial stage of literacy acquisition is the most vital one, cognitive confusion continues to arise and then, in turn, give[s] way to cognitive clarity throughout the later stages of education as new sub-skills are added to the student's repertory;

8. the cognitive clarity theory applies to all languages and writing systems. The communication aspect is univeral, but the technical coding rules differ from one language to another. For instance, in languages [like English] that have an alphabetic writing system linguistic awareness of the phoneme is more important than awareness of the syllable, whereas in languages with a syllabary (such as Japanese) awareness of the syllable is more important. (p. 37)

Cognitive clarity is demonstrated by increased understanding in five areas: the communication purpose of written language, concept

of visual symbols, concepts of abstract parts of spoken language, the technical vocabulary of language learning, and the decoding process (Downing, 1971). These five components of cognitive clarity are metalinguistic tasks whereby "a child must be able to consciously analyze language and the reading task to demonstrate understanding in the five components" (Allan, 1979, p. 26). Two of these components, understanding the concepts of abstract parts of a spoken language and understanding the technical vocabulary of language learning, are specifically related to the present study which investigated grade one children's concepts of a word. Before a review of the research directly related to children's concepts of a word is presented, a review of the research related to young children's metalinguistic awareness of the special terminology to teach reading will be discussed.

Metalinguistic Awareness of Beginning Readers

Cazden (1972) defines metalinguistic awareness as "the ability to reflect upon language as well as comprehend and produce it" (p. 303). According to Cazden, "metalinguistic awareness is one aspect of general cognitive development" (p. 90) and "as a child's language develops, so does his conscious metalinguistic awareness of that language" (p. 86). As stated earlier in this chapter, metalinguistic awareness may be used to describe a child's ability to understand the reading instruction register, the terminology used in reading instruction. Vernon (1960) has suggested that a lack of metalinguistic awareness may contribute to the cognitive confusion

that all children experience in their attempt to make sense of reading instruction. Conversely, it seems logical that children who are metalinguistically aware are no longer cognitively confused, but have progressed to a state of cognitive clarity. The following studies confirm the universality of cognitive confusion and the eventual progression to cognitive clarity in reading and writing and suggest that a group of beginning readers, as in the present study, will demonstrate individual differences and will be at various stages of their metalinguistic awareness of a word.

Reid (1966) was one of the first to explore children's thoughts about reading and writing. She conducted three loosely-structured interviews with each of twelve, Scottish five-year-olds over the course of their first year of formal instruction in reading and writing. Reid set out to

> Explore the general level of concept formation with regard to reading and writing as embodied in the 'technical vocabulary' [the language available for talking and thinking about the activity of reading itself], to follow the growth of these concepts and form some idea of the role they may play in the actual learning of the skills. (p. 56)

Initially, these children had very vague notions about the nature of reading. Reid detected developmental sequences, but noted that "these steps were not easily or swiftly taken, but that children groped towards the necessary ordering [of] elements at varying speeds and with varying degrees of success" (p. 61). For example, even after the third interview, near the end of the school year, children expressed inexact notions about written words as composed of letters, word boundaries, or the correspondence between written words and speech.

The present study explored further only one term in the technical

vocabulary of reading and writing investigated by Reid (1966). Sixty grade one children were interviewed after eight months of reading instruction on their concepts of a word. Aspects investigated were spoken (Test A) and written (Test D) word consciousness, awareness of the speech-print relationship (Test B), and awareness of visual word boundaries (Test C).

Downing (1970a, 1970b, 1971-1972) replicated Reid's first interviews, but extended her study by adding concrete stimuli (photographs, book, toy buses) and an experimental procedure (25 tape-recorded auditory stimuli). Downing's results of the interviews were very similar to Reid's (1966) findings, confirming that beginning readers have only vague notions as to the purpose of written language and are confused as to what activities constitute reading. In addition, they have difficulty understanding linguistic terminology. The additional research methods (concrete stimuli and experimental procedure) produced complementary evidence.

In the present investigation of grade one children's concepts of a word an experimental procedure was followed in a session with each child. No concrete stimuli were used. Only words, phrases, or sentences were presented as auditory and/or visual stimuli.

A study by Francis (1973) confirmed the findings of Reid (1966) and Downing (1970a, 1970b, 1971-1972) that children's concepts of letter and word are confused. Results of the investigation by Francis (1973) indicated that children learned the concept letter before word and word before sentence and that these terms were almost

always related to spelling, reading, and writing and were almost never related to spoken language. This hierarchical order of terms was also reported by Turnbull (1971) and has recently been confirmed in a study by Allan (1979). Francis (1973) contended that while children learned the concept "letter" in the process of learning to read, the concepts "word" and "sentence" were derived from the mastery of reading and writing. Also, it was found that an analytical approach to spoken language was developed while children were engaged in learning to read. It is this unfamiliarity with an analytical approach to language as well as the inconsistent and varied use of terms, rather than the children's limited cognitive abilities and the abstract nature of the concepts, which Francis attributed to causing difficulties in learning to read at the early stages.

All of the 60 children in the present study had received eight months of reading instruction and thus had some experience with print and reading. Test A investigated further children's notions of a spoken word, as did Francis, but Tests B, C, and D were also included to assess the children's concepts of a written word to determine if the same confusion existed as with their notions of a spoken word.

Hardy, Stennet, and Smythe (1974) compiled a list of 57 auditory and visual language concepts used in prereading and beginning reading programs as well as instructional terms used by kindergarten and primary teachers. A test or test item was developed for each concept and was administered individually to 60 kindergarten children (equal boys and girls) three times during the year—October, February, and

May. Although all of the children had been exposed to the concept of word through instruction, only 14% were able to identify a word at the end of the school year.

Because all of the children in the present study had experienced print for a year more than the kindergarten children in the study by Hardy et al. (1974), it was decided to note whether the children in the present study would be better able to identify a spoken word (Test A) and to see how successful they were at identifying a written word (Test D).

In a more recent study, Johns (1980) examined 60 grade one children's (above average, average, and below average readers) knowledge of print-related concepts using Clay's Concepts About Print Test (Sand). Above average and below average readers appeared to differ most significantly in "letter-word" and "advanced-print concepts," but Johns suggested that some of the differences between the two groups may be attributable to the manner in which the tasks were presented. Generally, there were significant differences in each group's concepts about print which indicated a relationship between cognitive clarity and reading achievement. The findings indicated that factors other than age may be involved in the acquisition of print-related concepts.

The children in the present study were grouped according to level of reading achievement (low, average, high). Each group was presented with the same tasks. A possible correlation between each concept of a word and reading achievement was investigated.

Based on these studies, it was assumed by the present researcher

that the grade one children in the present study would be at various levels in the progression from cognitive confusion to cognitive clarity in their concepts of a word.

Children's Concepts of a Word

The following studies are related directly to children's concepts of a word. Each study will be reviewed under the appropriate aspect(s) of concept of a word as follows: word consciousness, the speech-print relationship, segmentation of speech, segmentation of print, and segmentation of speech and print. Following these studies will be a discussion of three factors (reading achievement, sex, and age) related to children's concepts of a word.

Word Consciousness

Although beginning readers do not appear to possess a well-developed concept of "word," there is research evidence that children progress through a developmental sequence in attaining this concept. Support for a developmental sequence in acquiring the concept of a word has been reported by researchers investigating various aspects of the concept such as word consciousness, the speech-print relationship, and segmentation of speech and print.

The following studies investigated the ability of young children to identify a spoken word. They revealed that young children varied in their ability to identify a spoken word and that their responses reflected different levels of metalinguistic awareness. Test A, in the present study, investigated further grade one children's concepts of a spoken word. In addition, Test D was administered to nine

children to provide information about children's consciousness of written words and written word features. All of the present literature on written word awareness appears to deal with mainly word boundaries and segmentation of print. Perhaps it is easier to conduct and develop tasks for this type of research which assesses performance-based knowledge than it is to conduct research and develop tasks to assess verbalizable or reflective knowledge which requires children to talk about words and/or provide explanations of their responses. It may also be that research of the latter type with written words may be confounded by word recognition abilities as well as the variation in abilities to recognize words.

In conducting the experimental part of his study, Downing (1970a, 1970b, 1971-1972) specifically investigated young children's concepts of a word and a sound. Five examples of each of five types of auditory stimuli were presented: non-human noise (e.g., bell ringing), human utterance of a single short vowel phoneme, human utterance of a single word, human utterance of a phrase, and human utterance of a sentence. The subjects were asked to respond "yes" if they heard a word and "no" if the stimulus was not a word. In a second task, they were asked to respond "yes" if they heard a sound and "no" if the stimulus was not a sound. None of the subjects had a concept of a word which corresponded to an adult's concept of a word and five of the 12 subjects could make no discrimination on the basis of "a word" as a category. Similarly, none of the subjects used "a sound" as a phoneme nor could they discriminate between the stimuli on the basis of "a sound" as a category.

In 1973-1974, Downing and Oliver conducted a new experiment to improve Downing's (1970a, 1970b, 1971-1972) previous replication and expansion of Reid's (1966) original study. Improvements included a larger number of children (42 Canadian children) at three age levels (4.5 to 5.5 years, 5.6 to 6.5 years, 6.6 to 8.0 years), a wider range of auditory stimuli, and a modification of the pretraining task to ensure that each child understood the rules of the "yes-no" game. There were now eight classes of auditory stimuli which included: abstract non-verbal sounds (e.g., dice rattling in a cup), identifiable real-life non-verbal sounds (e.g., cat meowing), isolated phonemes, isolated syllables, short words, long words, phrases, and sentences.

The Downing and Oliver (1973-1974) study confirmed Downing's (1970a, 1970b, 1971-1972) previous findings that "young children do not have an adequate concept of what constitutes the spoken word" although this concept was shown to improve with age (p. 580). All of the children in this study confused isolated phonemes and syllables with words, even at age eight. Downing and Oliver found, as did Meltzer and Herse (1969), that "there appeared to be a tendency for the children between the ages of 5.6 to 6.5 years to exclude long words from their concept of the spoken word" (p. 581). Again it was suggested (Downing and Oliver, 1973-1974) that this was a reflection of the reading material to which they were exposed as well as the manner in which the teacher used the label "word."

Johns (1977) conducted a study to partially replicate and expand the Downing and Oliver (1973-1974) study. A visual and an auditory

pretraining task aided in the selection of subjects. For the main study, the same five examples in each of eight different classes of auditory stimuli as in the Downing and Oliver study were used. Both studies used three age groups, but only two age groups were the same (5.6 to 6.5 years and 6.6 to 8.0 years). Johns' study involved a group of older children from 8.1 to 9.5 years. There were 20 girls and 20 boys in each of the three groups with a total of 120 children. For the most part, Johns' results supported the findings of Downing and Oliver (1973-1974) confirming that "young children do not appear to possess an adequate concept of what constitutes a spoken word, especially in the early stages of reading instruction," but that this concept improves with age (p. 255). All the children in the Johns' study tended to exclude long words from their concept of a spoken word while this confusion was significant only with the intermediate children (5.6 to 6.5 years) in the Downing and Oliver study. It was found that the presentation of phonemes and syllables produced the most confusion in both studies. Johns proposed that phonemes and syllables may have presented an unfair challenge as many children may have assumed that some of the phonemes and syllables were words not yet learned.

These three studies demonstrated that young children may have immature concepts of a spoken word even after some formal reading instruction and some experience with print. The present study attempted to investigate further young children's concepts of a spoken word (Test A), but presented only single words and phrases and for each asked "Is _____ a word?" The children were not asked

to distinguish a word or phrase from other auditory stimuli.

In 1972, Kingston, Weaver, and Figa conducted a series of five experiments "to test the general hypothesis that first grade children do not understand the nature of a 'word'" (p. 93).

In experiment three, 15 children were presented with an auditory tape of words and common human utterances and were asked to identify the sound as a word or not a word. In experiment four, the same procedure was followed with 10 compound words and 10 word pairs. Both tasks presented the subjects with some difficulty.

As mentioned previously, in the present study, only single words and phrases were presented orally to be identified as being or not being a spoken word. Compound words and word pairs were not included in the present study as these words were considered by the author to present a difficult and an unfair challenge.

Holden and MacGinitie (1973) designed a Word Awareness Test based on the assumption that "word awareness proceeds according to predictable principles" (p. 2). Fifty kindergarten and 50 first grade children were presented with three subtests of 10 items each. Test I required the children to identify the word added to lists of words (e.g., read, boy, blue; read, boy, many, blue). Test II required the children to identify the word(s) added to sentences (e.g., Jack went swimming; Jack and Bill went swimming). Test III required identification of an additional word in sentences constructed around homophone pairs thus changing the grammatical structure of the second sentence (e.g., John leaves after dinner; John raked leaves after dinner). All the children were more successful on Test I (lists items) than on

Test III (homophones items). The findings showed "a rapid increase in word awareness at about age six" with grade one children performing significantly better than the kindergarten children (p. 7). All three tests had a high reliability and correlated moderately well with age and other variables (intelligence, Piaget's intercalation task and Almy's seriation tests, parental education, Riddle Interview, two easier seriation tasks). Holden and MacGinitie cautioned that "the inference that age is a major variable in determining word awareness should be made with . . . reservation" because "in this sample age is related to exposure to reading instruction" (p. 5).

Although the Downing and Oliver (1973-1974) study and a number of studies reviewed later in this chapter indicated that children's concepts of a word improve with age, age may not be directly related to word awareness as suggested by Holden and MacGinitie (1973), but may in fact be related to exposure to reading instruction and print. Age as a factor directly related to children's concepts of a word was considered in the present study even though age-related factors may be more significant.

Holden (1977) conducted a study "to clarify the question of whether word awareness is a developmental task or a learned behavior" (p. 203). Her study extended the previous findings of Holden and MacGinitie (1973) by readministering the Homophones Test to 26 kindergarten (16 girls and 10 boys) and 24 first grade (11 girls and 13 boys) children in order to analyze their responses qualitatively. The responses were assigned to seven categories: correct responses, homophonous word, phrase containing the homophonous word, repetition

of the entire sentence, other words in the utterance, and conversational responses. The grade one children performed significantly better giving more discrete responses while the kindergarten children gave more global responses. Holden did not attribute this to short-term memory, but hypothesized "that analysis of the utterance proceeds from the global to the discrete and that the differentiation of words from the semantic matrix is a later acquisition" (p. 206). Thus, Holden's (1977) findings suggested that word awareness is a developmental task. The present researcher also decided to note any developmental trends evident in the grade one children's responses.

An experimental study by Papandropoulou and Sinclair (1973) investigated children's verbalizable or reflective knowledge about words. One hundred two French children between the ages of 4 years, 5 months and 10 years, 10 months were interviewed. Following "a period of introduction and familiarization," an experimenter pronounced, one by one, a list of words. After each word, he asked, "Is _____ a word?" Upon completion of the list, each child was asked to explain his judgements. Each child was also asked, "What is a word, really?" After this, the children were asked to give a long word, a short word, a difficult word, and a word that they had invented themselves as well as to explain these choices. Further questioning took place, but this was not reported in the study.

Four different levels in what Papandropoulou and Sinclair call "metalinguistic or epilinguistic reflection" were identified (p. 244). The concept of "the word" was shown to undergo "a long and slow elaboration" from all objects and actions being identified as words

to words being identified as units of meaning and function (p. 249).

The Papandropoulou and Sinclair (1974) study was recently replicated by Templeton and Spivey (1980) to investigate "the developmental nature of the reflective concept of 'word'" in 24 English-speaking children from 4 years to 7 years, 8 months (p. 267). In addition to replicating Papandropoulou and Sinclair's (1974) Word Awareness Interview, two Piagetian assessment tasks (classification and seriation) were administered in order to compare developmental aspects of metalinguistic awareness and level of cognitive functioning. A rating scale to aid in the determination of level of word awareness was developed on the basis of children's responses in a pilot study:

1. The word is equivalent to an object and/or action;
2. The word is equivalent to saying something;
3. The word is equivalent to print as well as to sound;
4. The word is fully understood in terms of its significatory aspects as well as its structural aspects (i.e., rule-governed sequences of letters and sounds). (Templeton and Spivey, 1980, p. 268)

Of the 24 children tested, eight were identified as preoperational, 12 as transitional, and four as concrete operational. Templeton and Spivey noted that "the word awareness of the children increased with age and cognitive development according to the hypothesized sequence, but there was some degree of overlap in terms of responses" (p. 270). They (Templeton and Spivey, 1980, pp. 274-275) summarized the children's responses with reference to the three levels of cognitive functioning.

Preoperational Subjects

1. Inability to talk about language abstractly, resulting in many "no response" and "don't know" answers.

2. Metalinguistic responses most often equated words with speech (e.g., "A word is like you say something").

3. Explicit analysis of the speech stream was virtually impossible although at least some preoperational children were able to think about some aspects of speech.

Transitional Subjects

1. Much more likely to give responses to questions than the preoperational children.

2. Mentioned letters and spelling in some explanations.

Concrete Operational Subjects

1. Had more sophisticated notions of what a word is, involving their perceptions of print.

Based on Piagetian theory, and on the findings in their own study, Templeton and Spivey stated that "it should not be surprising to find some younger children, as in the present study, evidencing more sophisticated word awareness than several older children" (p. 275). Although only conjecture, they (Templeton and Spivey) speculated that "what accounts for this increased development may be, quite simply, increased exposure and conscious attention to the printed language" (p. 275).

Test A was essentially a replication of the Papandropoulou and Sinclair (1974) and the Templeton and Spivey (1980) studies. The 60 grade one children in the present study were presented with 13 words and three phrases and for each were asked, "Is _____ a word?" A sample of nine children were asked to explain their choices ("Why is _____ [not] a word?") and then were asked to

define a word. These nine children were also asked to give an easy, a hard, a long, a short, and an invented word as well as to provide an explanation for each choice. The present study did not assess each child's level of cognitive functioning and this has been recognized as a limitation of the study.

It was also decided to note grade one children's consciousness of a written word by administering Test D to the sample of nine children. For each of two sentences, repeated four times, the children were, in turn, asked to circle a long, a short, an easy, and a hard word, and to provide an explanation for each choice. Test D was developed by the present researcher from Test A.

Based on these studies, it was assumed that all of the grade one children would not identify each of the words presented orally as a spoken word unit and/or would identify one or more of the phrases as a spoken word unit. It was further assumed that the children would provide varied explanations when asked to define a word and would also provide a wide range of explanations for their choices of a long, a short, an easy, a hard, and an invented word.

The Speech-Print Relationship

A few studies have investigated young children's concepts about the speech-print relationship. It was found that beginning readers do not understand the speech-print relationship, and that an understanding of the relationship between a spoken word and a printed word is essential to progress in learning to read.

Rozin, Bressman, and Taft (1974) tested kindergarten, first grade, and second grade children who had not attained moderate

reading fluency to see how well they understood the relationship between a spoken word and its written counterpart. A word test was individually administered to six groups and a box test was individually administered to two other groups. In the word test, the examiner spoke two words. The two words were then presented individually on two cards and the child was asked to point to the card containing the word which the examiner repeated. After completing the eight word pairs, each child was asked to explain his final choice.

The box test was administered to exclude the possibility that some children may have been distracted by the letters themselves in an attempt to decode the words, letter by letter. A short and a long target word, each printed in large plastic letters, were placed in a corresponding short and long box. As each child was shown and had repeated the target words, they were replaced in the appropriate boxes and each box was covered. Following a practice trial, each child was asked to indicate which box would contain a particular word. Upon completing the eighth word pair, the child was asked to explain his choice.

It was found that 43% of the suburban kindergarteners scored at least seven out of eight with adequate reasons while only 11% of the urban kindergarteners met this criterion. It was noted that although this score improved from kindergarten through second grade in the urban children, many urban second graders still failed to meet the strict criterion. There was no explanation given for the suburban-urban score differences obtained by the kindergarteners and it was

noted (Rozin et al., 1974) that these differences could not be easily explained in terms of different kindergarten curricula although program implications were given.

Two researchers, Lundberg and Tornéus (1978) investigated the development of the word concept with 100 preschool children (aged three to seven) in Sweden. They based their study on the mow-motorcycle test developed by Rozin, Bressman, and Taft (1974), but refined it by varying the stimulus conditions (e.g., varied semantic congruence between the number of graphemes and the size of the denoted subject; systematically varied congruence of vowel duration with word length). A screening test was administered to ensure that none of the children could read. The children were presented with 72 pairs of words, each containing a short and a long word, and were requested to indicate a target word and explain their choices. The proportion of correct responses increased with age for all conditions. The young children (three-year-olds) gave mainly irrelevant and non-linguistic solutions. The older children relied more on semantic content. Some of the oldest children (seven-year-olds) were aware of the relationship between spoken and written words although "a substantial number of children in the oldest preschool group seemed to have poor concepts of the basic principle of our own writing system" (p. 412).

The results of these two studies provided evidence that pre-schoolers, even upon entrance to school, did not understand the match between a spoken word and a written word. That this confusion continued to exist even after formal reading instruction was

demonstrated by the first study (Rozin, Bressman, and Taft, 1974). The findings in both studies suggested that there is a positive correlation between understanding the speech-print relationship and readiness to read. In the present study, the children's awareness of the relationship between a spoken word and a written word was investigated (Test B) and a possible correlation was investigated between the understanding of this speech-print relationship and reading achievement.

A study by Morris (1980) introduced a clinical strategy for assessing beginning readers' awareness of the correspondence between written and spoken words. Twenty-one first graders were tested early in October. A five-step procedure was followed where each child learned first to recite a four-line poem and then completed four tasks which demonstrated his knowledge of the relationship between speech and print. It was assumed that this five-step sequence provided four measures of a child's concept of a word:

1. Ability to point to words as one reads aloud,
2. Ability to recognize individual words within a single line,
3. Ability to recognize individual words within the whole four line poem, and
4. Ability to learn sight words from the short reading experience. (p. 100)

Morris found considerable differences in the grade one children's levels of concept of word attainment. Also, a high correlation was found between the Concept of a Word Test given in early October and a word recognition test given in December.

In a discussion of methodological issues, Morris cited three advantages of the assessment procedure introduced in his study:

1) Concept of word tasks are presented within the context of a purposeful, realistic reading experience;

2) The variable, concept of word, is viewed as a multifaceted ability dependent on the child's skill in coordinating aural and visual language cues; and

3) Concept of word is assessed indirectly by relying on behavioral indicators of the ability. This indirect assessment circumvents the problem of metalinguistic awareness and hopefully will result in a better predictive measure of early reading achievement. (p. 106)

Test B in the present study replicated the five-step sequence devised by Morris (1980).

Based on the aforementioned studies, it was expected that some of the children in the present study would not have a clear understanding of the spoken word/printed word relationship, even after eight months of reading instruction. It was also felt by the researcher that there may be a correlation between reading achievement and understanding of the speech-print relationship. The design of the present study permitted an investigation of these areas.

Segmentation of Speech

Several researchers, whose studies will be reviewed, have attempted to assess young children's ability in auditory segmentation. Although an auditory segmentation task was not included in the present study, the following studies revealed that young children are not prepared for the conscious dividing of speech into separate words even though they may be fluent speakers who have unconsciously segmented their oral language.

As early as 1955, Karpova (1955/1966) identified three stages in the development of the child's ability to segment utterances into words. Russian children, between the ages of three and seven, were presented with sentences and were asked to count the words and identify their ordinal positions in each sentence. Although these children had all successfully completed a preliminary training with counting pictures and orally presented words, three levels of responses to the segmentation task were identified. The youngest children (Level I) considered the sentence to be a unified message and segmented it on the basis of semantic units. Older children (Level II) tended to isolate the nouns which Karpova viewed as "the first step toward formal analysis of sentences into words" (p. 370). Upon further questioning, children at this level began to break sentences into subject and predicate. A few of the oldest children (Level III) were able to segment the sentences into individual words, generally with the exception of prepositions and conjunctions. Similar results were reported by Chappel (cited in Holden and MacGinitie, 1972). "Karpova concluded that the presence of these levels indicated a developing ability to separate the message of a sentence from its format and to think objectively about language" (Evans, 1975, p. 177). Although it is difficult to generalize Karpova's study to children speaking a language other than Russian, it is interesting to note the developmental trend identified by her.

Huttenlocher (1964) presented each of two groups of children, aged 4½ to 5 years, with 15 pairs (grammatical and nongrammatical) of words, letters, and numbers. The 33 children in group one were

asked to say the 15 items in reverse order while the 33 children in group two were asked to respond by saying the first item, tapping, and then saying the second item. The results indicated that these preschool children had the most difficulty in dividing common word sequences (e.g., it is, red apple) into separate words. The results of Huttenlocher's experiment confirmed the results of a Russian study by Ervin and Miller (cited in Huttenlocher, 1964), which reported that children who were presented with common sentences indicated units longer than single words as words.

The present study did not directly assess young children's ability to segment spoken sentences into words, but focused on segmentation of print (Test C). (Two sentences were read orally by the examiner prior to having the children mark the word boundaries in the printed sentences.) The results of Huttenlocher's study suggested that segmentation of different sequences may vary in difficulty. For example, normal sentence sequences may be more difficult to segment than letters and numbers or nongrammatical sequences.

In 1972, Holden and MacGinitie investigated 84 kindergarten children's ability to segment words in speech, using a greater variety of utterance types than had been used in previous studies. Each child was presented with tape-recorded phrases and short sentences which he was asked to repeat. After the child had repeated the utterance correctly, he repeated it again while tapping a chip for each word. Similar to previous investigators, Holden and MacGinitie found that children had much more difficulty isolating

function words than they did words with more lexical meaning (content words). Generally, the percentage of correct segmentations was greater in phrases and sentences with a high proportion of content words. It was noted that a child's sensitivity to the rhythmic pattern of an utterance may have influenced the way in which it was segmented. Findings in a study by Ehri (1975) confirmed the results of Holden and MacGinitie (1972). "Despite a modification of their [Holden and MacGinitie] procedure to minimize the influence of sentence intonation patterns on word-marking responses, prereaders were still observed to omit many more marks for function than for content words" (Ehri, 1975, p. 209). That content words were more easily isolated than function words (Holden and MacGinitie, 1972), also supported the findings of Huttenlocher (1964) and Karpova (1955/1966). These findings were considered by the present researcher when reporting the children's performance on the spoken word consciousness task (Test A) which included words from different word classes and on the written segmentation task (Test C). Also, because the visual segmentation task in the present study included an initial oral reading by the examiner of two of the sentences, a comparison of scores was made to determine if the children were in fact aided by the rhythmic aspects of the oral reading as suggested by Holden and MacGinitie.

In 1972, Kingston, Weaver, and Figa conducted a series of five experiments "to test the general hypothesis that first grade children do not understand the nature of a 'word'" (p. 93). In the final experiment, 15 first graders were presented with 12 taped sentences

containing words and sounds (human and inanimate). They were instructed to tell how many words they heard in each sentence. This task was found to be very confusing and too difficult for the subjects. The present study used only human language, words, phrases, and sentences, as auditory or visual stimuli in order to keep the experimental condition as close to the classroom reading situation as possible.

An auditory segmentation test was administered by Hardy, Stennett, and Smythe (1973) to 126 grade one and two subjects. This test consisted of 15 sentences varying in length from three to seven words with three sentences of each length. In order to reduce memory demands of the task, familiar, frequently occurring words were used in the sentences. Although it was found that segmentation varied somewhat according to the type of unit (word, syllable, phoneme) involved, few errors occurred in segmentation of sentences into words and no analysis was attempted. As noted by Holden and MacGinitie (1972), it was found that the rhythm of the language assisted in the segmentation task as well as intonation and familiarity with the spoken language. Syntactic complexity of the sentences was not a variable investigated (Hall, 1976). Common, frequently occurring words were also used in the visual segmentation task (Test C) in the present study.

A study by McNinch (1974) sought to determine if awareness of aural and visual word boundaries is related to reading readiness test performance and if awareness of aural and visual word boundaries is a prerequisite to learning to read. Sixty first grade pupils, 20 in

each of three groups labelled good, average, and poor (based on the Metropolitan Readiness Test, Form A) were administered two informal language perception tests. The Aural Word Presentation Test, developed by McNinch in 1971, was used to assess each subject's ability to segment words from spoken speech. This task involved listening to spoken utterances and representing the words heard with small wooden blocks. Awareness of aural word boundaries as measured by speech-stream word segmentation did not indicate a significant difference between groups, but correct aural word segmentation was found to be a significant predictor of reading achievement. McNinch (1974) hypothesized that "the ability to discriminate correct boundaries of aural words is a prerequisite to learning to read" (pp. 1132-1133) and concluded that "pupils who made correct discrimination of aural boundaries become better readers" (p. 1134). Although the present study did not assess children's ability to segment speech into words, a possible correlation of student ability to segment printed sentences into words and reading achievement was investigated (Test C).

A study by Evans (1975) reported somewhat mixed results. An aural word identification (AWI) test of 10 items was developed. Each sentence contained from three to eight words, duplicating the structures used by Karpova (1955/1966). At the first testing in September, 45 kindergarten and 45 first grade children were administered the AWI test. Children who could already read or who had difficulty enumerating a series of pictures or a string of two to four isolated words were eliminated. The AWI test was again administered to the remaining children in December. The first graders had been given the

Metropolitan Readiness Test in September and were given the Gates Primary Reading Tests in December.

The American children did not duplicate the same distribution across the three levels as identified by Karpova (1955/1966) in her study of Russian children. Evans stated that "far fewer Americans than Russians exhibited Level I performance," but she did not appear to consider that there were younger children (three to seven years) in Karpova's sample. In both studies, the results indicated that children who could identify the individual words in a string were not all able to segment sentences into component words. Evans made a very interesting statement when she reported that

> Although the kindergarteners showed some improvement over a three month period, it was not as dramatic as the increased performance of the first grade children who appear to have acquired an understanding of how to deal with words apart from their meanings as they are introduced to reading. (p. 179)

Evans suggested that as a result of learning to read, children were beginning to focus on the structure of the sentence rather than process it in meaning units. While the ability to segment sentences into conventional word units seemed to facilitate learning to read, Evans also found that the children's early ability to aurally segment sentences did not appear to predict differential success in beginning reading. In the present study, it was expected that the children would demonstrate an increased ability to segment written sentences into words as all the children had received some formal reading instruction and had had some experience consciously analyzing words.

Fox and Routh (1975) conducted a developmental study to investigate 50 children's, aged three to seven years, ability to repeat

sentences heard and to analyze these sentences into words, syllables, and phonemes. After repeating eight sentences heard, each child was asked to segment each of the eight sentences into words. The directions given

> Now, I am going to say something to you and I want you to say just a little bit of it. If you say just a little bit of it, you'll get a raisin. For example, if I say "Peter jumps," you would say "Peter." Now, let's try it. I'll say "Peter jumps." (p. 335)

reflected the intention of Fox and Routh to use "a novel procedure intended to have even fewer extraneous cognitive requirements than any of the studies reviewed" (p. 333). Unlike in the tasks mentioned in previous studies, each child was given considerable guidance.

> For each sentence, if the child responded with a multiple-word phrase, the experimenter then repeated this phrase back to him, saying, "tell me a little bit of [phrase]." In this way, the child was led to segment each multiple-word phrase completely into words, if he was capable of doing so, before progressing to the remainder of the sentence. (p. 335)

A high correlation was found between the sentence segmentation and word segmentation tasks with age being a significant factor. In contrast to the findings of Holden and MacGinitie (1972), Fox and Routh (1975) found that even three- and four-year-olds could segment spoken sentences into words. They attributed this to their use of "a little bit" of a sentence rather than "word."

Fox and Routh (1975) appeared to almost guide the children to successful segmentation. Because the present study investigated grade one children's concepts of a word and because the children had been exposed to eight months of reading instruction, it was felt by the present researcher that retaining the term "word" in the directions for the written segmentation task and for the other tasks would permit

a more realistic assessment of the concept.

These studies then indicated that young children do not necessarily segment speech into conventional word units. Further evidence was provided that the grade one children would vary in their consciousness of a spoken word as assessed by Test A as well as in their ability to segment written sentences into words (Test C).

Segmentation of Print

The following studies investigated children's concepts of visual word segmentation. These studies suggested that children do not acquire metalinguistic awareness of printed word boundaries until some reading proficiency has been achieved. It is also suggested that, initially, beginning readers use criteria other than printer's space to segment words in print. The present study attempted to investigate grade one children's awareness of visual word boundaries as one aspect of their concepts of a word.

Before Downing's (1970a, 1970b, 1971-1972) research was completed, Meltzer and Herse (1969) published the findings of their study which investigated grade one children's ability to define a written word and consider its boundaries, to discriminate between numbers, letters, and/or words, and sought to determine if children possess the concept that a whole may be made up of parts. Each child performed nine short tasks which included being presented with a sentence and circling each word or using scissors to cut off one word at a time. It was discovered that the children were confused regarding the meaning of the term "word" just as they had been in the Reid (1966) and Downing (1970a, 1970b, 1971-1972) studies. Based on the performance of the children

in their study, Meltzer and Herse (1969) inferred a sequence in the development of a written word before space is the main determinant. They suggested that children initially equate letters and words and then consider a word to be more than one letter. Next, they use space as a boundary except for short or long words. The number of letters is the dominant cue with short words being combined and long words being divided. In the fourth stage, short words are recognized as wholes, but long words continue to be divided. Finally, words are indicated by spaces except that ascending or descending letters may take precedence over space as the cue to a word boundary. It was noted that "the incorrect cues to word boundaries used by these children can be considered a logical result of the reading materials to which they were exposed and to their progress in these materials" (p. 13). Meltzer and Herse noted a relationship between reading group placement and the type of errors made. In the present study, a possible correlation was investigated between the child's ability to segment printed sentences into words and grade level (as indicated by the Gates-MacGinitie Reading Achievement Tests).

Experiment one in the study conducted by Kingston, Weaver, and Figa (1972) was a replication of the study by Meltzer and Herse (1969) except that there were three experimental conditions: the basal reader condition, the second-order approximation to English condition (nonsense words), and the adult novel condition. For each experimental condition, 15 subjects were asked to cut sentence strips into word units. The results were analyzed according to the scoring criteria developed by Meltzer and Herse (1969) with a category for "other

combinations" being added. For all three conditions, the most common error was that of combining two or more words. It was noted that there was no difference in the responses to the basal reader materials and that the second order approximation to English (nonsense words) equated to the word length of the basal reader materials. The developmental trend observed by Meltzer and Herse was not duplicated and it was concluded (Kingston et al., 1972) from the results of experiment one

> That recognizing the printer's space as the seperator [sic] of words is secondary to perceiving that a particular linguistic unit represents a meaningful unit. The reason for the performance in the case of long words is obscured because length of the words and the ability to perceive words as meaningful units are correlated—the longer the word the more difficult is the comprehension. (p. 95)

In the present study, three of the four sentences in the visual segmentation task were printed without the conventional printer's space. It was felt by the present researcher that this would allow an assessment of spaces as indicators of word boundaries to beginning readers.

In the McNinch (1974) study, each child's ability to segment visual word boundaries was assessed based on the Meltzer and Herse (1969) study. A significant difference between each of three groups (good, average, and poor) was found with the group labelled good having obtained more correct visual segmentations. These findings appeared to support the hypothesis of Meltzer and Herse (1969) that perception of visual word boundaries is related to initial readiness. The present study also compared the visual segmentation ability of low, average, and high achieving readers and investigated a possible

correlation of this ability with reading achievement.

In 1974, Mickish undertook to examine 117 grade one children's perceptions of written word boundaries in May. The children were first involved in two practice items where they were instructed to draw a vertical line beside one already drawn and then to draw a similar line between four circles. For the test item, the children were presented with a six-word sentence without the spaces between the words (Thecatandthedogplayball) and were instructed to mark a vertical line between each of the words while the sentence was played continuously on a tape recorder. Even after a year of reading instruction, half of the children were not able to accurately mark the word boundaries. It was noted that the better readers were better at marking the word boundaries, thus supporting the Meltzer and Herse (1969) study.

Test C was essentially a replication and an expansion of the Mickish (1974) study. The children were required to segment three sentences printed without the conventional printer's space between words and also a fourth sentence printed in the conventional manner. Sentences one and two were the same as were sentences three and four. Sentences one and four were totally visual tasks. Sentences two and three were read once orally by the researcher before the visual boundaries were marked by each child. In the Mickish study, an auditory tape which accompanied the written sentence was played continuously during the task. The present researcher felt that this would be distracting and cause undue confusion in marking visual boundaries.

Based on these studies which investigated children's ability to segment print, it was expected that some of the grade one children in the present study would have difficulty segmenting printed sentences into single words, even after eight months of reading instruction. It was also expected that the children's concepts of visual word boundaries, as indicated on Test C, would reflect a developmental sequence.

Segmentation of Speech and Print

A few researchers, cited below, have investigated the relationship between segmentation of speech and segmentation of print. Although the present study did not investigate this relationship specifically, it was felt that these studies provide additional information about word boundary concepts and young children's word concepts generally that may have implications for reading instruction and future research.

In a second experiment by Holden and MacGinitie (1972), 57 of the 84 children who had taken part in the "talking and tapping game" (experiment one) were trained for a second task which would test their ability to match a spoken utterance with a written representation of the utterance. After tapping a chip for each word that had been heard in an utterance, each child was instructed to count the number of chips he had tapped, and was then asked to indicate the appropriate utterance on a printed card which contained four sentences each varying in their number of letter clusters. Because the children seemed to be quite unaware of the printing convention, they were taught that words are composed of letters, and that words are printed with a visible space between them. Even after this instruction, the children

tended to divide utterances into units that did not correspond to conventional printed words. It was interesting to note that these prereaders made little gain even after specific instruction. These findings provided further evidence that prereaders' perceptions of word units in speech do not match conventional word segments in speech or print. This suggested that the ability to segment speech correctly may be a prerequisite for visual segmentation and the present study provided an opportunity to investigate children's visual segmentation abilities when aided by the auditory stimulus (Test C).

In a second experiment, based on the aural representation task originally presented by McNinch in 1970 (cited in Kingston, Weaver, and Figa, 1972), Kingston et al. presented their subjects with sentences or phrases (from two to six words per sentence or phrase) under three experimental conditions (aural [words read by the examiner], visual, taped). They were asked to place the number of words in the sentence before the examiner was heard on tape or read the phrases or sentences. The number of words was consistently underestimated in the reading aloud and taped conditions, but was overestimated when the stimulus was visible. Although the students tended to amalgamate units in all situations, their greater success in the reading situation led Kingston et al. to conclude that more cues to the word unit are provided by a visual representation. A comparison of auditory segmentation and visual segmentation was not possible in the present study, but the researcher attempted to determine if the children produced more correct visual word segmentations after the written sentence was read orally by the examiner.

The rationale for a study by Hall (1976) "was an attempt to demonstrate a *significant difference between* a child's ability to analyze consciously speech and print" (p. 13). In addition, Hall wished "to demonstrate how the ability to segment speech into words lags behind the ability to segment print into words, and to offer evidence that experience with print is a significant factor in this development" (p. 13). Twenty-four boys and 16 girls, between the ages of 4.8 and 6 years, were administered a test for the segmentation of speech into words (SSW) and a test for the segmentation of print into words (SPW). The SSW test consisted of 10 tape-recorded sentences which the child could listen to freely until the sentences were memorized and could be repeated easily. For each sentence, the child was asked to give the first word, the next word, etc. until the sentence was finished. The SPW test consisted of three subtests. In Test A the children were asked to identify numbers, letters, and words from a series of symbols. In Test B the children had to pick out a word and identify its beginning and end as well as pick out a non-word from a passage of continuous prose. Test C required the children to cut sentences into their constituent words as had been done in the Meltzer and Herse (1969) task. The correlations between SSW and SPW were found to be positive, but not significant. Hall hypothesized that the children in his sample "were applying different criteria of "word" to the two test situations" and that "the children's criteria changed as their experience with print grew" (p. 18).

These three studies demonstrated the difficulty in investigating the relationship between speech and print segmentation. While the

first study (Holden and MacGinitie, 1972) appeared to suggest that correct auditory word segmentation may be a prerequisite to correct visual word segmentation, the last study (Hall, 1976) appeared to suggest that experience with print may be the crucial factor. Although auditory word segmentation and visual word segmentation were not directly investigated in the present study, two of the sentences in the visual word boundary test (Test C) were first read orally by the examiner in order to determine if the auditory stimulus was an aid to visual word segmentation.

Factors Related to Children's Concepts of a Word

The present study investigated grade one children's concepts of a word and the possible correlation of concept of a word specifically with each of three independent variables: reading achievement, sex and age. Following are studies which support the choice of these three variables.

Reading achievement. A number of studies, which will be briefly reviewed, have demonstrated a relationship between children's understanding of technical linguistic concepts and reading achievement.

Francis (1973), in her study of 50 English boys and girls found that her highest correlation was between technical vocabulary and reading achievement, even with general vocabulary skill being statistically controlled using a partial correlation technique. She concluded that "factors independent of a general ability to deal with abstract concepts were involved in learning technical vocabulary, and that these were closely related to the reading process" (p. 72).

In an investigation of the reading readiness domain by Evanechko, Ollila, Downing, and Braun (1973), three pencil and paper group tests were developed. One of the significant relationships shown was between children's technical linguistic concepts and reading achievement. Recently, these three tests were revised and extended by Ayers and Downing (1979). Test C, Technical Language of Literacy, was found to have significant predictive validity for all (below average, average, and above average) reading groups.

> The predictive validity coefficients for large groups were as high as .60 and for single classes as high as .80 providing empirical evidence of the significance of linguistic awareness in predicting reading achievement at the end of Grade 1. (p. 1)

In a study which explored 40 children's awareness of segmentation in speech and print, Hall (1976) found a significant correlation (alpha = .01) between the ability of these children to segment printed sentences into words and their reading achievement level (indicated by reading book position). The correlation of ability to segment speech into words and reading achievement was found to be just below the .05 level of significance.

A possible relationship between children's concepts of a spoken word and reading achievement was indicated in a study by Johns in 1977. When suggesting directions for future research, Johns stated that "if the results are to aid teaching and learning, it may be profitable to determine the relationship of children's concepts of metalinguistic phenomena to their reading achievement" (p. 256). In a later investigation of first graders' concepts about print, Johns (1980) found that there were significant differences among three reading achievement groups in the expected direction in

print-direction concepts, letter-word concepts, and advanced-print concepts.

Another investigation that shows a relationship between children's language awareness and reading achievement was conducted by Evans, Taylor, and Blum (1979). A battery of seven tests was developed to assess various aspects of 53 first graders' understanding about the written language code and its relation to oral language. Evans et al. found that the scores on these tests were predictive of reading achievement. The tasks which stressed the interrelationship between the oral and the written code were the most highly correlated with and predictive of reading achievement, with the metalinguistic interview being the best predictor of reading achievement.

In another recent study, Morris (1980) specifically investigated grade one children's concepts of a word by devising a clinical strategy (reported earlier) for assessing young children's knowledge of the speech-print relationship. A significant relationship was reported between the grade one children's concepts of a word in October and their reading achievement in December ($r = .89$, $p = .01$).

Most recently, Day, Day, and Griffen (1981) reported a high positive correlation between scores on the Concepts about Print Test, administered to 56 children early in kindergarten and their reading achievement measured at the end of grade one.

Most of the studies just reviewed have demonstrated a significant, positive correlation between general linguistic awareness and reading achievement. Therefore, the present study investigated further a possible relationship specifically between children's concepts of a

word and reading achievement as reported by Hall (1976), Johns (1977), and Morris (1980).

Sex. Although there appears to be much research to support a sexual factor in language development and reading, the evidence appears to be inconclusive.

Based on a review of research "dedicated to investigating the disparity in reading achievement between boys and girls," Stanchfield (1971) stated that, "while some studies fail to reveal significant sex differences, the majority indicate that girls generally excel boys, particularly in the first three grades" (p. 155). In a more general statement, he concluded that

> While such factors as increasing maturity, instructional methods, or high-interest materials can modify the initial inequality, most of the research in language development and reading indicates that the "sex gap" exists at all levels, from kindergarten to college. (p. 155)

Other researchers, such as Weintraub (1966), have not been convinced of the significance of the sexual factor in reading achievement. Weintraub comments that "various studies at readiness or beginning levels show differences or no differences between boys and girls, depending upon the skill or ability being measured" (p. 155).

In a more recent review of "sex role stereotypes and standards" Downing (1979) cites studies (e.g., Dykstra and Tinney, 1969; Johnson, 1973-1974) which support the North American belief that girls are superior to boys in the early stages of learning to read. He also cites research which reports the superior achievement of boys in Nigeria (Abiri, 1969), India (Oommen, 1973), and Germany (Preston, 1962). Citing a study by Johnson (1973-1974), Downing reveals that

"only in Canada and the United States was there a clear superiority for the female samples" (p. 127). An English study by Morris (cited in Downing, 1979) found no significant differences between girls and boys in reading achievement. Downing (1979) concludes that

> It is rather surprising that educational researchers have given such scant attention to the medical research literature regarding sex differences. This provides considerable evidence that many of our ideas about the differential abilities of boys versus girls may be nothing more than myths. (p. 129)

In the research reviewed specifically for the present study, sex was found to be significantly related to linguistic ability in very few studies. Chappel (cited in McNinch, 1974) concluded that "word identity or awareness is seemingly a learned or developmental task affected by sex, age, and cultural status" (p. 476). A study by Day and Day (1979) revealed significant differences between the mean scores for females (10.4) and males (8.0), $F(1, 50) = 4.25$, $p < .05$ on the Concepts about Print (CAP) Test. These sex differences were not found on the Record of Oral Language (ROL) Test, but the researchers suggested "that males and females may differ in reading readiness, although they are similar in oral language development" (p. 22). Another sex difference was also found when age was correlated with the CAP score. It was determined that sex differences were not due to sex differences in the distribution of any variable nor to any skewness differences. Also, mean ages of the sexes did not differ. In an attempt to explain the positive correlation between the performance on the CAP and age for the females only, Day and Day suggested that the differences in performance between the sexes may "reflect the existence of different critical periods for the acquisition

of these print-related concepts or point to different sex-specific intrinsic or extrinsic motivational influences on the development of prereading skills occurring at this age" (p. 22).

Because of the inconclusive evidence regarding sex as a factor in language development and reading, sex has been considered in the present study as a factor possibly related to children's concepts of a word.

Age. The acquistion of concept of a word with age, as children progress from a state of cognitive confusion to a state of cognitive clarity, has been reported in a number of studies (e.g., Downing and Oliver, 1973-1974; Holden, 1977; Johns, 1977; Papandropoulou and Sinclair, 1974; Templeton and Spivey, 1980). As suggested by Holden and MacGinitie (1973), age may be a factor in the acquisition of a word only in that age is directly related to exposure to reading instruction and experience with print and cognitive development.

Only a few studies, some of which are discussed below, have reported significant effects specifically due to age.

In the 1973-1974 study by Downing and Oliver (described previously), where children were presented with eight classes of auditory stimuli, significant main effects due to both age and auditory stimulus class as well as a significant interaction between the two factors were revealed. Simple main effects analyses showed "significant differences in the number of correct responses given to each class of auditory stimuli for all age groups plus significant differences among the age groups in the number of correct responses

given to long words, phrases, and sentences" (p. 574). The age range was from 4.5 to 8.0 years with the following age range groupings: 4.5 to 5.5 years, 5.6 to 6.5 years, 6.6 to 8.0 years. Similar findings were reported by Johns (1977).

In a study by Fox and Routh (1975), the age effect was found to be significant for sentence segmentation as well as word segmentation, use of the conventional syllable boundary, and segmentation of syllables into individual sounds. The children's ages ranged from three to seven years. Lundberg and Tornéus (1978), working with a sample of children ranging from four to seven years, found significant main effects for age, with the proportion of correct responses increasing with age on all tasks.

Other researchers (e.g., Ehri, 1975; Hall, 1976; Holden and MacGinitie, 1973) have suggested that age may or may not have been significant because of confounding variables (e.g., differential experience with print, development of cognitive-linguistic skills).

In the Holden and MacGinitie (1973) study with kindergarten and grade one children, word awareness appeared to be moderately correlated with chronological age. Holden and MacGinitie did note that, for their sample, age was related to exposure to reading instruction and that "the inference that age is a major variable in determining word awareness should be made with this reservation" (p. 5).

Although none of the studies which selected a sample with a limited age range reported any significant differences in performance on tasks of linguistic awareness due to age, it was felt by the

present researcher, based on the studies reviewed here, that age should be included as a possible factor in grade one children's concepts of a word.

That the average child's metalinguistic awareness of a word improves with age has been supported by a number of studies cited previously but only a few researchers have reported age as a significant factor directly related to children's concepts of a word. In addition, some of these and other researchers have suggested that age may be only indirectly related to children's concepts of a word. Therefore, the possible significance of age as a factor has been considered further in the present study.

Summary

In this chapter, two main topics were discussed: the development of linguistic awareness and children's concepts of a word. The following generalizations, related to the present study, were drawn from the review of literature.

1. Factors involved in word perception may obscure the identification of word segments in speech and may lead to inaccurate perceptions about words.

2. Beginning readers will be in different stages in the growth of cognitive clarity as they are confronted with and attempt to make sense of reading instruction.

3. Young children differ in their concepts of a spoken word and in their abilities to identify spoken word units.

4. Some beginning readers will have difficulty understanding

the speech-print relationship, but this concept is basic to progress in learning to read.

5. Beginning readers are not necessarily able to segment speech and print into conventional word units.

6. Experience with print may be an important factor in the development of spoken and written word concepts.

7. Children's concepts of a word improve with age in that their concepts of a word become more like the adults' concepts as they get older.

8. A positive significant correlation has been demonstrated between aspects of concept of a word and reading achievement. For example, some researchers have found a significant relationship between awareness of the speech-print relationship and reading achievement.

9. Some studies have demonstrated significant differences in aspects of concept of a word among reading achievement groups. For example, significant differences have been reported among low, average, and high achieving readers in their ability to identify a spoken word from other auditory stimuli.

Chapter 3

DESIGN OF THE STUDY

A four-part Concept of a Word Test (Tests A, B, C, and D) was developed to describe further four aspects of grade one children's concepts of a word: spoken word consciousness, awareness of the speech-print relationship, awareness of visual word boundaries, and written word consciousness. The test provided information for descriptive analyses and performance scores suitable for statistical analyses. This chapter describes the sample, the research instruments used, the pilot study, the procedure for the main study, and the data analyses employed.

Sample

Level A, Form 1 of the Gates-MacGinitie Reading Tests was group administered to each of nine heterogeneously-grouped, grade one classrooms in two elementary schools in a large urban Alberta school system. The two elementary schools were chosen by school board officials and designated by them as being in middle-class communities. After excluding the test results of six children who had participated in the pilot study and of children who were not fluent speakers of English and/or children who had repeated grade one, a group of 152 children (75 girls, 77 boys) remained. After calculating the test mean (51.13) and the standard deviation (17.73) for this group, a sample of 20 low, 20 average, and 20 high achieving readers with

10 girls and 10 boys from each reading achievement group (see Table 3.1) was selected using a table of random digits (Hopkins and Glass, 1978, pp. 406-407). Fifty-one of the sample of 60 children were administered only the parts of the Concept of a Word Test for which scores could be tabulated (Test B, parts of Tests A and C) and used for statistical analyses. Nine of the sample of 60 children were selected to complete the entire Concept of a Word Test on the following basis. Prior to beginning the main study, each of the teachers of children in the sample of pupils was asked to identify children whom she considered to be verbal in that they willingly expressed themselves during class discussions. These children, as well as any other children thought by the examiner to be "talkative" early in the test interview, were asked to explain some of their first "yes" or "no" responses on Test A. If a child was willing to provide explanations, he was given the complete Concept of a Word Test. This procedure was continued until three Concept of a Word Tests had been completed (with both sexes being represented) in each of the three reading achievement groups.

Instruments

Gates-MacGinitie Reading Tests (MacGinitie, 1979)

Level A, Form 1 of the Gates-MacGinitie Reading Tests was administered to obtain a standardized achievement rating for each child in reading (vocabulary and comprehension). The content and format (multiple choice) were found to be suitable for use with grade one children (e.g., directions easily understood, sufficient

Table 3.1

Children's (N = 60) Scores on Gates-MacGinitie Reading Tests (Level A, Form 1, 1979)

	Males				Females			
	Pupil Number	Vocabulary (Total Possible = 45)	Comprehension (Total Possible = 40)	Total (85)	Pupil Number	Vocabulary (Total Possible = 45)	Comprehension (Total Possible = 40)	Total (85)
LAR*	01	16	16	32	31	13	7	20
	02	19	9	28	32	19	12	31
	03	13	0	13	33	18	7	25
	04	11	14	25	34	5	3	8
	05	19	14	33	35	17	7	24
	06	15	11	26	36	13	13	26
	07	13	10	23	37	21	9	30
	08	13	12	25	38	7	3	10
	09	18	15	33	39	16	14	30
	10	19	9	28	40	19	9	28
AAR**	11	29	17	46	41	31	15	46
	12	34	32	66	42	33	19	52
	13	23	15	38	43	33	23	56
	14	24	18	42	44	25	14	39
	15	25	29	54	45	30	23	53
	16	34	29	63	46	18	19	37
	17	22	16	38	47	34	23	57
	18	26	15	41	48	16	27	43
	19	38	30	68	49	39	29	68
	20	29	27	56	50	28	20	48

* low achieving readers
** average achieving readers

Table 3.1 (continued)

	Males				Females			
	Pupil Number	Vocabulary (Total Possible = 45)	Comprehension (Total Possible = 45)	Total (85)	Pupil Number	Vocabulary (Total Possible = 45)	Comprehension (Total Possible = 45)	Total (85)
HAR***	21	42	36	78	51	35	37	72
	22	38	36	74	52	40	39	79
	23	39	37	76	53	40	33	73
	24	38	33	71	54	44	39	83
	25	40	37	77	55	39	33	72
	26	43	37	80	56	40	35	75
	27	42	34	76	57	39	30	69
	28	43	37	80	58	35	36	71
	29	42	35	77	59	36	38	74
	30	44	25	69	60	43	33	76

*** high achieving readers

practice questions provided, consistent format allowing children to work independently). Also, the test could be group administered which made it possible to test nine classes of grade one children from which a sample of 60 children could be drawn. Level 1, Form A of the Gates-MacGinitie Reading Tests is a standardized achievement test based on Canadian norms of English-speaking students. Procedures were followed by the test developers to assure validity and reliability (Kuder-Richardson Formula 20 reliability coefficients—vocabulary .91, comprehension .92) as outlined in the Teacher's Manual of the Gates-MacGinitie Reading Tests (MacGinitie, Kamons, Kowalski, MacGinitie, and MacKay, 1980, pp. iv-v, 23-27, 48).

Concept of a Word Test

This research instrument was a modified four-part composite of instruments used in four research studies (Mickish, 1974; Morris, 1980; Papandropoulou and Sinclair, 1974; Templeton and Spivey, 1980) and will be called in this study the Concept of a Word Test. The four subtests will be referred to as Tests A, B, C, and D (see Appendix A).

Test A. Test A was based on the Word Awareness Interview which was developed by Papandropoulou and Sinclair (1974) and later partially replicated by Templeton and Spivey (1980) (see Appendix A). It was completely oral, presenting thirteen words and three phrases in isolation. For each of the words and phrases the child was asked "Is _____ a word?" to which he indicated an affirmative or negative response. An affirmative response was scored as one and a negative

response as zero except in the case of the three phrases where the scoring was reversed. For example, if a child responded "no" to "Is 'hide-and-seek' a word?", a score of one point was given. In all cases, responses were reduced to a "yes" or "no" answer. All 60 children took this part of Test A and the answers were scored out of a total possible score of 16 on a response sheet used by the examiner. The information gained was used to provide an assessment of each child's awareness of spoken words to be used for statistical analyses. Nine of the 60 children were questioned further after each yes or no response and were asked, "Why is _____ (not) a word?". Next, they were explicitly asked "What is a word, really?" and "How do you know when something is a word?". Following this, they were asked to give a long, a short, an easy, a hard, and an invented word as well as to provide an explanation as to why that particular word was chosen. The responses of the nine children were recorded by the examiner in addition to being tape-recorded (see Appendix B). They were reported descriptively using the rating scale developed by Templeton and Spivey (1980) as a guide. They identified four levels of word awareness:

1. The word is equivalent to an object and/or an action.
2. The word is equivalent to saying something.
3. The word is equivalent to print as well as to sound.
4. The word is fully understood in terms of its signifactory aspects as well as its structural aspects.

The responses of the nine children were reported on the basis of these four levels and a fifth "no response" category.

Test B. Test B was a replication of the Concept of Word Assessment introduced by Morris (1980) as a clinical strategy for assessing beginning readers' concepts of a word (see Appendix A). The first verse of the poem "Alligator Pie" was used for this test. A five-step sequence was followed to explore each child's knowledge of how spoken words are represented in printed text.

1. Each child learned to recite the four lines of the first verse with the assistance of the examiner.

> Alligator pie, alligator pie,
> If I don't get some I think I'm gonna die.
> Give away the green grass, give away the sky,
> But don't give away my alligator pie.

2. After each child had memorized the spoken poem, a printed copy of the poem was shown to the child and he was informed that this was a printed copy of the poem he had just learned. The examiner modeled the first line of the poem by pointing to each word as he read it aloud. The child was instructed to do the same with each of the remaining lines. After each line was read, the child was asked to locate two or three target words within that line as pronounced by the examiner (see underlined words). The examiner recorded each child's responses on a copy of the poem. A total score of 26 was possible for pointing to each word and saying it aloud (one point for each word). This was referred to as Test B_1. One additional point was given for locating each of the eight previously chosen target words in lines two, three, and four. This was Test B_2.

3. The entire poem was then read orally by the examiner and the child together with the examiner pointing to each word as it was pronounced. Several children chose to point to each of the words along

with the examiner. No points were given of course.

4. Next, the examiner pointed to the nine individual target words which each child was asked to pronounce (see underlined words) for a total possible score of nine. This was Test B_3.

5. Lastly, each child was asked to pronounce each of the nine target words as they were presented in isolation. One point was given for each of the nine words correctly identified. This was Test B_4.

In following this procedure, four measures of the speech-print relationship were assessed for each child. These were:

1. Ability to point to words as one reads aloud. (Test B_1—26 points)

2. Ability to recognize individual words within a single line. (Test B_2—8 points)

3. Ability to recognize individual words within a four-line poem. (Test B_3—9 points)

4. Ability to learn sight words from a short reading experience. (Test B_4—9 points)

The total number of points possible for Test B was 52. The information gained was used to provide an assessment of each child's awareness of the speech-print relationship. The scores were used for statistical analyses.

Test C. Test C investigated the child's concept of written word boundaries as investigated by Mickish (1974) (see Appendix A). Each child was presented with four sentences and was asked to draw a vertical line between each of the words. The first three sentences contained no spaces between words while the fourth was written with

the conventional spaces. Sentences one and two were the same. Each child completed sentence one independently, but sentence two was first read orally by the examiner before the child began the task. The child was not told that sentence two was a repeat of sentence one although some children observed that it was. Sentence three, a sentence different to that of sentences one and two, was also read orally and was included to account for any practice effect which may have occurred from sentence one to two. Common words were used in both of the sentences in Test C and both had the same syntactic structure. One point was given for each word identified in each of the first three sentences with a total possible score of 21. For example, if a child made a vertical line after 'the' in the first sentence (Thecatandthedogplayball), one point was given and if a vertical line was made preceding and following 'cat,' another point was given. The fourth sentence, a repeat of sentence three but written in the conventional manner, was included to provide descriptive information only. All of the children indicated the word boundaries in sentence four and each child in the sample of nine was asked to explain the white spaces between each of the words. The responses were recorded and reported descriptively by the examiner (see Appendix B).

Test D. Test D was administered to nine of the 60 children and consisted of two written sentences, repeated four times each (see Appendix A). For each of the eight typed sentences, the children were asked to circle, in one of two randomized orders and by turn, the longest, easiest, shortest, and hardest word and to provide an

explanation for each choice. The responses were recorded by the examiner on each child's answer sheet to be analyzed descriptively.

The Pilot Study

A pilot study was conducted prior to the main study to refine the wording of the Concept of a Word Test, to test administrative procedures, and to determine approximate times needed to complete the various tasks. Three girls and three boys from the assigned population took part in the pilot study. They were selected by three teachers who were collectively instructed by the principal to provide the examiner with six children, two in each of three reading achievement categories (low, average, high). Selection then was based on teacher observation and choice.

The procedure for each test outlined previously for the main study was followed for the pilot study. All six children were able to complete the tasks with a wide range of responses being evidenced. No major changes were made following the pilot study, but it was noted that it would be necessary sometimes to restate a question so that it would appear less threatening to some children. For example, a slight change in wording from "Why is _____ a word?" to "Why do you think _____ is a word?" would elicit a response from a child who was hesitant to reply. It was also deemed important that the best possible rapport be established prior to the main study and that each interview session should be as relaxing as possible with the child being allowed adequate time to give responses. During the administration of the Gates-MacGinitie Reading Tests, the examiner

read one or two stories, taught a couple of poems, and sang with each class. Before each interview, the examiner spent the first few minutes talking generally with each child. None of the children seemed disturbed by the presence of the tape recorder. The session with each of the 51 children lasted from 10 to 25 minutes. The interview with each of the nine children lasted from 30 to 45 minutes. No evidence of stress or strain was apparent as the tasks were varied and the examiner continually provided positive comments.

Procedure of the Main Study

The same procedure for the administration of each part of the Concept of a Word Test was followed in the main study as in the pilot study (Table 3.2). Each of the 60 children was administered Test B and parts of Tests A and C for which scores could be tabulated for statistical treatment. Nine children completed all tasks in the Concept of a Word Test.

Table 3.2

Concept of a Word Test Administration

Total Sample of 60 Children	Test A	Test B	Test C	Test D
51 children	parts only	all parts	parts only	no parts
9 children	all parts	all parts	all parts	all parts

The nine were selected on an ongoing basis as the data were being collected, as described previously. All children were given the tests in an order randomized at the will of the examiner for each child to avoid any bias which may have been introduced by administering them in a prescribed order.

Following the collection of data, each teacher of the nine grade one classes was provided with a copy of the Concept of a Word Test. The examiner's observations were discussed very briefly and globally. In addition, the class sets of the completed Gates-MacGinitie Reading Tests which had been provided by the school board were returned to the appropriate teachers. A record of all the marks was retained by the examiner and a copy of this was sent to the school board.

Data Analyses

The computer facilities in the Division of Educational Research Services, University of Alberta, were used to analyze the data suitable for statistical analyses.

For the research question, the responses of the nine children who were selected to complete all parts of the Concept of a Word Test were reported descriptively in order to provide additional information (e.g., similarities and differences) about grade one children's concepts of a word.

For research hypothesis one, a computation of correlation program (DEST 02) was used to determine correlation coefficients between all the variables (reading achievement [vocabulary, comprehension, total], Tests A, B [B_1, B_2, B_3, B_4, total], and C, sex,

and age). Correlations were considered to be significant at the .05 level of confidence which is the most commonly chosen value for alpha (Hopkins and Glass, 1978, p. 219).

For research hypothesis two, a two-way analysis of variance program (ANCV 25) was used to determine whether there were significant differences among the three reading achievement groups or between the sexes on the dependent variables (Tests A, B [B_1, B_2, B_3, B_4, total], C) in the study. Differences were considered to be significant at the probability level of .05 which is the most commonly chosen value for alpha (Hopkins and Glass, 1978, p. 219). Where significant differences were found, the Scheffé Multiple Comparisons of Means was used to determine the specific source of the differences.

Summary

Sixty grade one children, with 10 girls and 10 boys in each of three reading achievement groups (low, average, high), were randomly selected after administration of the Gates-MacGinitie Reading Tests to nine classes in a large urban Alberta school system. A Concept of a Word Test was individually administered to the sample of 60 children to provide information about various aspects of their concepts of a word. Nine of the children completed all parts of the Concept of a Word Test and 51 of the children completed only the parts for which scores could be determined. The Concept of a Word Test was first tested in a pilot study. Responses relevant to the research question were reported descriptively and data relevant to hypotheses one and two were analyzed statistically. For research

hypothesis one, possible relationships were investigated by using the Pearson product-moment correlation and for research hypothesis two, a two-way analysis of variance was used to determine whether there were significant differences among the three reading achievement groups. The Scheffé Multiple Comparisons of Means was used to determine the source of the significant differences.

Chapter 4

FINDINGS OF THE STUDY

The purpose of this study was to describe four aspects (spoken word consciousness, awareness of the speech-print relationship, awareness of visual word boundaries, and written word consciousness) of grade one children's concepts of a word and to explore the relationships of the four aspects of their word concepts to reading achievement, sex, and age. This chapter presents the findings of the study in relation to the research question and hypotheses generated in Chapter 1 as well as a discussion of these findings. The findings for the research question are reported descriptively without statistical analysis in contrast to the findings for research hypotheses one and two which follow statistical analyses. A discussion is included with a report of the findings for each of Tests A, B, C, and D and for the research question and hypotheses in preparation for the final chapter where conclusions will be drawn.

Research Question

> Will there be differences in four aspects (spoken word consciousness, awareness of the speech-print relationship, awareness of visual word boundaries, and written word consciousness) of grade one children's concepts of a word which can be observed and reported descriptively?

Qualitative information was provided for the research question by administering the four-part Concept of a Word Test. The findings are reported and a discussion is included for each of Tests A, B, C, and D.

Spoken Word Consciousness (Test A)

"Is _____ a Word?"

In the first part of Test A, thirteen words and three phrases were presented individually to the sample of 60 children. After each word or phrase, the examiner asked, "Is _____ a word?" upon which each child responded with a "yes" or "no" answer. A few children expressed uncertainty (e.g., "I think so"), but were encouraged to give an affirmative or negative response. A summary of the responses is presented in Table 4.1.

Based on an average number of correct responses for each class of words, the nouns were most consistently recognized as being words, followed by the adjective, the function words, the adverb, and finally the verbs. Almost all (58) of the children in the sample of 60 believed that 'children' was a word. Fifty-nine of them thought that 'the' was a word. Of the 13 single words presented, 'because' and 'is' were least often recognized as words. Although most of the children correctly identified each of the 13 words as being 'a word,' far fewer of them correctly recognized each of the phrases as not being a word. That the children performed noticeably lower on the phrases than on the word classes, suggests that some children may have been misled by the wording of the question. Perhaps, if the question had been, "Is _____ one word?", the children's overall performance may have been more consistent.

That the nouns were most consistently recognized as being words, further supports the findings of many researchers (e.g., Papandropoulou and Sinclair, 1974; Robertson, 1968; Templeton and Spivey, 1980;

Table 4.1

Summary of Children's (N = 60) Answers to "Is _____ a Word?"

"Is _____ a Word?"	Yes	No
Nouns		
children	58	2
table	55	5
night	54	6
Verbs		
give	53	7
took	52	8
talking	51	9
is	49	11
Function Words		
the	59	1
and	55	5
with	55	5
because	50	10
Adjective		
happy	55	5
Adverb		
slowly	53	7
Phrases		
from the house	37	23
hide and seek	44	16
up and down	46	14

Wilson, 1973). 'Children' was the noun most often recognized possibly because it was the noun most relevant to the children themselves. What was surprising, and was not supported by the related research, was that the children in the present study identified the function words as words more consistently than they did the verbs. Perhaps the children in the present study were fairly consistent in identifying such functions words as 'the,' 'with,' and 'and' because of their high frequency of appearance in the grade one reading material. Also, they may have been emphasized and reinforced as common sight words and analyzed during the eight months of reading instruction which these children had received prior to the administration of the Concept of a Word Test. It should be noted that the present study did not involve any prereaders as did the Papandropoulou and Sinclair (1974) or the Templeton and Spivey (1980) studies on which Test A was based. 'The' may have been one of the first sight words learned which would account for it being recognized by most of the children. 'Is' was least recognized as a word probably because it is usually used as an auxiliary verb. As for 'because,' the fact that "it is used spontaneously by the child from the age of 3 to 4 onwards" without understanding its function (Piaget, 1928/1976, p. 9) may partially account for the difficulty the children had in recognizing it as a word.

The phrases presented the children with more difficulty than the single words. A majority of the children said that each phrase was a word. Perhaps most of the children responded to each phrase as being a single unit of meaning. 'From the house' was the phrase

most often correctly recognized as not being a word. This suggests that the children may have been influenced by their familiarity with each of the phrases. That children tend to use and hear 'up and down' and 'hide and seek' more frequently than 'from the house,' may account for the more familiar phrases being identified as words more often.

"Why is _____ (not) a Word?"

Nine of the 60 children were asked to explain each of their responses as to why the auditory stimulus presented was or was not a word. The findings have been reported and discussed by class of word. A summary of the children's responses is presented in Table 4.2.

All of the nine children equated each of the nouns either with an object and/or an action or with saying something. Each of the nouns was treated as something concrete, even in the case of 'night.' 'Children' was the only noun recognized by all of the children. Perhaps, as suggested previously, 'children' was the noun most relevant to each child himself. The same child who said 'table' was not a word said that 'night' was not a word. In explaining both negative responses, this child provided explanations which other children used to explain their affirmative answers. This suggests that the children based their decisions on very subjective criteria related to their own experiences.

The explanations as to why each of the verbs was or was not a word were much more varied than those given for the nouns even though some of the children could not provide explanations and even though most of the children equated 'give,' 'took,' and 'talking' with an action. Table 4.3 summarizes the children's answers. Some children

Table 4.2

Summary of Children's (N = 9) Explanations of Responses to Nouns when Asked "Why is _____ (not) a Word?" (Test A)

Word	Response Yes	Response No	Type of Explanations	Examples*
children	9	0	1 gave no explanation	"because it's a word"
			1 equated it with saying something	"'cause your mother could say 'come here children'"
			6 equated 'children' with an object	"'cause you have little children"
				"because we're some children"
			1 expressed object and action	"'cause children like to play"
table	8	1	9 referred to 'table' as an object involved in an action	"no . . . because it's something you eat on"
				"because you have to eat off it"
				"because you eat at a table"
				"because if table wasn't a word you'd have nothing to put your food on"
night	8	1	5 equated 'night' with an object	"no . . . because it's night"
				"sometimes it's night"

*Table 4.2 and other similar tables, to be presented in this chapter, include only examples of the children's explanations. A complete reference of the nine children's explanations of responses on the Concept of a Word Test is presented in Appendix B.

Table 4.2 (continued)

Word	Response Yes	Response No	Type of Explanations	Examples*
				"if there wasn't any night, it would always be night or afternoon"
			2 equated it with an action	"if it's nine o'clock and you want to get some fresh-air"
				"because you have to sleep in your own bedroom"
			2 equated 'night' with saying something	"because you can say 'it is night . . . time to go to bed'"
				"'cause my mom says 'it's night'"

*Table 4.2 and other similar tables, to be presented in this chapter, include only examples of the children's explanations. A complete reference of the nine children's explanations of responses on the Concept of a Word Test is presented in Appendix B.

Table 4.3

Summary of Children's (N = 9) Explanations of Responses to Verbs when Asked "Why is _____ (not) a Word?" (Test A)

Word	Response Yes	Response No	Type of Explanation	Examples
give	8	1	1 responded subjectively	"no . . . people don't like that word very much"
			7 gave examples of 'give' as an action	"'cause you can give people things"
				"like you give something to your friend"
			1 could not provide an explanation	"because you can say I . . . can't answer . . . it's hard"
took	8	1	2 equated 'took' with an action but used alternate forms of the verb	"no . . . because you're taking somebody"
				"some people take something and grab it away"
			1 presumably referred to the number of sounds	"because it's three words [sounds]"
			6 used 'took' in a sentence	"you took a banana"
				"I took a dish"
talking	8	1	6 referred to the action of talking	"like you're talking to your friend on the telephone"
				"'cause you say something"
			1 referred to the action and to the suffix	"you can talk . . . it has 'ing' in it"

Table 4.3 (continued)

Word	Response Yes	Response No	Type of Explanation	Examples
			1 presumably referred to the number of letters	"because it has five words [letters] in it, maybe, I don't know"
			1 equated 'talking' specifically with saying something	"'cause you can say, 'I'm talking. Be quiet!'"
is	9	0	2 could not provide explanations	
			1 supposedly referred to the number of letters	"'cause it has two words [letters] in it"
			2 equated 'is' with saying something	"'cause you say 'is the bird gone?'"
				"like it is a giant"
			3 expressed that 'is' was part of something larger	"because it's in like a sentence"
				"'cause it goes with some other words"
				"because you can make up 'is' in a sentence . . . you couldn't make up a question because 'is' is always in a question"
			1 used 'is' in an example	"is going to the store"

used alternate forms of the verb 'took' when giving their explanations which suggests that they were most concerned with the meaning of the word. Some of the children referred to sounds, number of letters, and the word as part of a larger unit (e.g., a sentence) in their explanations which showed more sophistication in responses than was demonstrated previously with the nouns. Although 'is' was the word least recognized as a word by the sample of 60 children, all of the children in the sample of nine said 'is' was a word.

The explanations provided by the children for the function words were even more varied than those given for the verbs and are summarized in Table 4.4. Because the children could not equate the function words with objects or actions may have caused them to do more reflecting which resulted in more varied answers. Contrary to the findings of other researchers (e.g., Papandropoulou and Sinclair, 1974; Robertson, 1968; Templeton and Spivey, 1980), the function words were more readily recognized as words than were the verbs. This may be accounted for by the practice of many grade one teachers to teach some of the more common function words as sight words and to reinforce them in weekly spelling tests. This may also account for 'the' being the word most often identified as a word in the present study. Of the four function words presented, 'and' and 'because' caused the most confusion to the sample of nine children. It may be that 'and' was the least familiar and/or least meaningful out of a sentence or phrase context. One child equated 'and' with 'Ann' which, according to Messer (cited in Templeton and Spivey, 1980), "illustrates the marked tendency of young children to relate an auditory stimulus to a known,

Table 4.4

Summary of Children's (N = 9) Explanations of Responses to Function Words when Asked "Why is _____ (not) a Word?" (Test A)

Word	Response Yes	Response No	Type of Explanations	Examples
the	9	0	1 could provide no explanation	
			1 gave a subjective answer	"some people like saying the word 'the'"
			1 used 'the' in a phrase	"the people"
			1 gave an example of 'the' in a sentence	"The giant is here."
			2 equated 'the' with saying something	"because you can say 'the monster' or 'the bear'"
				"because you can say 'the names are on the chairs'"
			1 tried to explain in terms of sounds	"because it can have long 'e' or short 'e' . . . it can say two words 'the' or 'thee'"
			1 presumably referred to the number of letters	"because it has three words [letters] in it"
			1 referred to 'the' as part of a sentence	"because that's in a sentence"
and	7	2	1 did not know why 'and' was not a word	
			1 gave a subjective answer	"no . . . 'cause it doesn't make sense"
			1 confused 'and' with 'Ann'	"because you are . . . begging to go to school . . . Ann . . . your friend's name"

Table 4.4 (continued)

Word	Response Yes	Response No	Type of Explanations	Examples
			2 equated 'and' with saying something	"because you can say 'mommy and daddy'"
				"some people say 'and' with their words in"
			1 used 'and' as an example in a phrase	"me and my friends"
			1 gave an example in a sentence	"because . . . I have some books and some toys"
			1 indicated that 'and' was part of something larger	"you can put a sentence with it"
			1 referred to letters or sounds, but based on other responses probably meant letters	"because it has three words [letters]"
with	8	1	6 expressed 'with' in an action	"no . . . that's when you're with someone"
				"you're with a friend"
				"because if you're with someone"
			1 equated it with saying something	"'cause I can say 'I ride with my bike'"
			1 provided no explanation	
			1 presumably referred to the number of letters	"because it has five words [letters] in it"

Table 4.4 (continued)

Word	Response Yes	Response No	Type of Explanations	Examples
because	7	2	1 who responded "no" could not provide an explanation	
			1 gave a subjective response	"no . . . because people don't say those words very much"
			1 equated 'because' with saying something and as part of a sentence	"because you can say 'because' . . . if there wasn't any because there wouldn't be any sentence if you wanted 'because'"
			2 equated 'because' with saying something	"because you can say 'because I like you'"
				"because you can . . . like you say 'because'"
			3 gave examples using 'because'	"because you wear a moustache"
				"like because your friend's away"
			1 response could not be interpreted by the examiner even after further questioning	"to get something because it has two words"

familiar term" (p. 272). That 'because' was one of the words which presented much difficulty to the sample of nine and to the entire sample of 60, may be attributed to its complexity as a conjunction (Piaget, 1928/1976).

The children's responses to both the adjective and the adverb, summarized in Table 4.5, were similar in that the majority of children related each of the two words to some type of action. Of the remaining responses, one was especially interesting as the child equated the word 'happy' with the emotion, making the existence of the word a necessary part of the condition. One child used 'slow' instead of 'slowly' indicating a possible emphasis on meaning. There was a tendency for the children to contrast the word with its opposite, especially with the adverb.

Most of the children believed that each of the phrases was a word and responded as they had to the single words (see Table 4.6). Only a few children referred to the number of words with one child consistently pointing out the number of words in each of the phrases. What was most surprising was that 'hide and seek' was the phrase most often recognized as not being a word by the sample of nine even though it is probably more familiar than 'from the house.' A number of children may have made arbitrary decisions as is indicated by some of the explanations. That the majority of children believed each of the phrases to be a word, supports the findings of many researchers (e.g., Downing and Oliver, 1973-1974; Holden and MacGinitie, 1972; Templeton and Spivey, 1980) which indicated that young children do not have an adequate concept of what constitutes a spoken word or that

Table 4.5

Summary of Children's (N = 9) Explanations of Responses to an Adjective and Adverb when Asked "Why is _____ (not) a Word?" (Test A)

Word	Response Yes	Response No	Type of Explanations	Examples
happy (adjective)	8	1	7 equated 'happy with an action (or a condition)	"no . . . because you're happy sometimes"
				"you can get happy"
				"'cause some people are happy"
				"because like your friends are happy or you're happy"
			1 equated the word 'happy' with the emotion	"because then everybody would be sad or mad if there wasn't any 'happy'"
			1 equated 'happy' with saying something	"because you can say 'I'm happy'"
slowly (adverb)	8	1	1 could give no reason for the "no" response	
			6 used 'slowly' to describe some type of action	"'cause you either go slowly or fast"
				"some people go slowly"
				"it means you're slowly walking"
			1 used an alternate form of the word to describe an action	"if you walk very slow you won't get there very fast"
			1 used it to describe an action and as part of a sentence	"because some people can do something slowly and make it up in a sentence"

Table 4.6

Summary of Children's (N = 9) Explanations of Responses to Phrases when Asked "Why is _____ (not) a Word?" (Test A)

Phrase	Response Yes	Response No	Type of Explanations	Examples
from the house	7	2	1 could not explain why it was not a word but after further questioning said it was two words	
			1 referred to the number of words	"no . . . because it's more than one word" [Q] "three"
			6 related 'from the house' to some type of action	"you can go from the house and come from the house"
				"if you go very far from your own house you'll get grounded very soon"
			1 was difficult to interpret but appeared to refer to the object	"because there's a bunch of houses"
hide and seek	6	3	1 child referred to an action	"no . . . because that's when you're playing with somebody"
			1 child referred to the number of words	"no . . . because it's three words just like up and down"
			3 equated 'hide and seek' with playing the game	"it's a game . . . you play it"
				"'cause you play a game called that"
			1 referred to action and object subjectively	"no . . . because some people don't like playing that"

Table 4.6 (continued)

Phrase	Response Yes	Response No	Type of Explanations	Examples
			1 equated the phrase with the object and the action and gave a subjective view	"if there wasn't any word of 'hide and seek' you could[n't] play the game and have any fun"
			1 equated it with saying something	"you're saying something"
			1 referred to the first letter	"because it's a word that starts with 'h' for 'hide'"
up and down	8	1	1 referred to the number of words (for all three phrases)	"no . . . because it's three words"
			1 said it was part of something larger	"because that's in a book"
			7 equated 'up and down' with some type of action	"'cause you're going on an elevator and you're going up and down"
				"'cause some people go up and down . . . jumping up and down"

children's notions of a spoken word may not correspond to the conventional spoken word unit.

Discussion

The responses of the children in the present study as to why a particular auditory stimulus was or was not a word were similar to the responses in the Papandropoulou and Sinclair (1974) and Templeton and Spivey (1980) studies with one exception. In the present study, there were very few children who did not respond or who produced responses which would be classified in a "no response" category. Unlike the two previously mentioned studies, the present study did not include any prereaders which may account for the differences in the number of children who did not respond. Both Papandropoulou and Sinclair, and Templeton and Spivey noted that the prereaders in their studies were the most reluctant to respond.

Although the explanations by the children in the present study were varied, most of the children equated a word with an object and/or an action as in Papandropoulou and Sinclair's level one of word awareness or equated the word with saying something (level two). Papandropoulou and Sinclair (1974) considered level two to be "a first beginning of metalinguistic thought" as "words have some autonomous reality" and children "no longer think only of what is being talked about but of what is being said" (p. 246). Other responses by children who referred to such aspects as number of letters, sounds, spelling, and sentence structure demonstrated a more sophisticated level of word awareness, according to the researchers in the two previously mentioned studies, than is evidenced at levels

one or two. It was not, however, possible to categorize many of the responses to a specific level of word awareness beyond level two as the criteria for levels three and four were not explicitly laid out by Templeton and Spivey or by Papandropoulou and Sinclair. For example, Templeton and Spivey determined level three awareness as "the word is equivalent to print as well as to sound" and level four awareness as "the word is fully understood in terms of its signifactory aspects as well as its structural aspects (i.e., rule-governed sequences of letters and sounds)" (p. 268). The need for more explicit criteria to aid in the classification of responses beyond levels one and two was expressed in a study of Key Vocabulary responses conducted by Blakey (1980). It is interesting to note that even though some of the children in the Templeton and Spivey study were beginning grade two, "no level '4' responses were given by any of the children" (p. 270). In other words, the children in the Templeton and Spivey study produced no level four responses and the researchers did not provide any examples. Although they referred to the four levels of word awareness, they did not analyze their responses in terms of those levels. Such an analysis was attempted by Papandropoulou and Sinclair, but again the criteria for each level were not clear and there appeared to be some degree of overlap of responses among categories. For these reasons, the explanations of the children in the present study were reported descriptively and categorized by level of word awareness only when possible. It was noted that each child varied in his level of word awareness depending on the particular word. Such factors as experience with print, familiarity with individual

words, and cognitive level of functioning (preoperational, transitional, concrete operational) may affect level of word awareness.

As in the Papandropoulou and Sinclair (1974) and Templeton and Spivey (1980) studies, a variety of responses was evidenced in the present study when the nine children were asked, "What is a word, really?" and "How do you know when something is a word?" These responses are presented in Table 4.7. Although most of the children equated a word with saying something (level two of word awareness), other children mentioned words as consisting of letters and reading words which probably indicated a more sophisticated level of word awareness than level two in that the words have "become detached from the reality they represent" (Papandropoulou and Sinclair, 1974, p. 246). For example, the child who said something is a word "if you read it" was probably giving a level three response according to Papandropoulou and Sinclair, and Templeton and Spivey's criteria, but the child who mentioned that something is a word "'cause it's just letters put together" could have given a level two or three response. As mentioned previously, the criteria for each of the levels were not always made clear in these research studies and there appeared to be a definite overlap of criteria between each of the levels of word awareness.

When asked to give an example of a long, a short, a hard, an easy, and an invented word as well as provide an explanation for each of their choices, the children in the present study produced varied responses (see Table 4.8). The types of responses were similar to those received by Papandropoulou and Sinclair (1974) and Templeton

Table 4.7

Summary of Children's (N = 9) Responses to "What is a Word?" (Spoken)

Type of Explanations	Examples
4 equated a word with saying something and included a subjective comment	"because there's a lot of words around the places . . . some people like saying lots of words to people" "well, if there's a human . . . if there's really a human . . . something that you say"
2 referred to a word as consisting of letters	"because if there's a whole bunch of letters . . . and you put them together it's a word" "'cause it's just letters put together . . . I can tell when it's three words . . . it can be three words put together"
1 referred to the type of initial letter	"things like words . . . begin with upper case and lower case"
1 gave a more vague response	"it's in your mind"
1 equated a word with print	"if you read it"

Table 4.8

Summary of Responses to "Give Me a _____ Word"

Type of Word	Type of Explanations	Examples
Long	1 made a subjective statement	"some people likes to play with your mom and likes your mom . . . because children love their mom very much"
	1 could provide no explanation	"grandfather . . . because it's a word"
	1 mentioned the initial letter	"the, that, two . . . because it starts with a 't'"
	1 mentioned spelling	"something . . . because you spell it that way . . ." [Q] "they spell it long and we spell it long"
	5 referred to the number of letters	"see Pat run . . . 'cause it has lots of letters all together.
		"alligator . . . 'cause it has lots of letters and it's just one word put together"
		"explain . . . I don't know how many letters it has, but it has eight letters or so"
		"tape recorder . . . because there's lots of letters in it"
Short	8 referred to number of letters	"one . . . 'cause it just has three letters"
		"me . . . because there's only two letters in 'me' and it's really short"
		"one ball . . . 'cause it only has a few letters"
	1 appeared to equate a 'long word' with a 'story'	"that was a scary night . . . because it was a scary night I was dreaming about a scary night"

Table 4.8 (continued)

Type of Word	Type of Explanations	Examples
Easy	1 made no attempt	
	2 related their choices to spelling	"can . . . because you know how to spell it good"
	1 related it to spelling and to sounding it out	"Kathy . . . because there aren't that many words [letters] in it and I know how to spell it and I can sound it out . . . I only had to sound it out at the beginning of grade one"
	1 mentioned a compound word	"farmhouse . . . 'cause it's only a two words"
	1 referred to the ease of figuring it out	"beanstock . . . because it's an easy word to figure out"
	1 mentioned the initial letter	"Kathy . . . because it only has 'k' for Kathy"
	1 referred to number of letters	"egg . . . it only has three letters"
	1 mentioned sounding it out and reading	"farm . . . 'cause it's easy to sound out and very easy to read"
Hard	1 appeared to equate 'word' with 'story'	"two and three make . . . once I saw a scary movie . . . because they was talking about the hard words"
	1 mentioned repetition and getting mixed up	"people blink their eyes . . . 'cause if they say it over and over you'll get mixed up"
	2 referred to spelling	"[friend's name] . . . because it's hard to spell and my dad doesn't know how to spell it"
	1 mentioned writing specifically	"teachers . . . some people don't know how to write 'teachers'"

Table 4.8 (continued)

Type of Word	Type of Explanations	Examples
	4 mentioned the difficulty of figuring out the words	"fantastic . . . 'cause it's not all that easy to sound out and it has lots of letters"
		"witch . . . because you can't look at it . . . you'd get it wrong"
Invented	3 gave responses which indicated the words were invented	"strawslurp . . . 'cause they do slurp"
		"faig . . . because you just make it up"
	1 gave no explanation	"play . . ."
	2 referred to an action	"train . . . because you ride on a train"
	1 recalled a known word as an invented word	"potatoes . . . because I just wanted to make it up so that was the only word I was thinking of"
	1 gave objects related to the invented word produced	"Halloween . . . 'cause it has pumpkins"
	1 appeared to equate an invented word with making up a story	"I had a book. It was called One Two Three Four Five Six . . . by my own self"

and Spivey (1980) with the exception of one category. The Templeton and Spivey study did not ask the children to produce an invented word. Although most children produced single word responses, some children gave responses which involved two or three isolated words, phrases, or sentences when asked for a single word. A few children could not explain their choices while explanations referring to the number of letters were most common. Some children referred to spelling and to sounds. Only one child referred to reading specifically. A few children appeared to equate 'word' and 'story' while a few referred to 'letters' as 'words.' It should be noted that all directions were given orally by the examiner and that the examiner expressed no expectation as to the type of explanation that should be given. The children were free to relate their explanations to speech or to printed language.

Only two children produced a short word that was more than three letters. One child who mentioned 'love' as an easy word ("because it has an easy spelling") was unable to spell it when questioned further. It was interesting to note that the two children who each gave a compound word as an easy word were from the same classroom where compound words had been discussed. The children appeared to have the most difficulty thinking of an invented word. Although the researcher felt that some children did not clearly understand the meaning of "invented" or "made up," no further explanation was given to the children in order that the task remain a replication of the task as presented in the Papandropoulou and Sinclair study.

Awareness of the Speech-Print Relationship (Test B)

Test B provided four measures of the child's concept of a word specifically related to his understanding of how spoken language is represented in print. These four measures were:

1. Ability to point to words as one reads aloud,
2. Ability to identify target words within a single line,
3. Ability to identify target words within the context of a four-line poem, and
4. Ability to learn sight words from a short reading experience.

Observations of Test B will be reported generally first then under each of the four measures of the speech-print match. The children's total scores on Test B and scores on each subtest are presented in Table 4.9.

The range of scores on Test B was from 1 to 52 out of a total possible score of 52. A positively skewed distribution resulted. Two-thirds of the children achieved perfect or near perfect scores on Test B which demonstrated that a majority of the grade one children in the sample had a good understanding of the speech-print relationship. Ten children achieved lower scores (less than 40) which indicated difficulty in understanding the relationship between a spoken word and a written word. One child was unable to demonstrate the aural-visual match.

Table 4.9

Pupil Scores on Test B, Awareness of the Speech-Print Relationship

Pupil Number	Subtests*				Total Score	Pupil Number	Subtests*				Total Score
	B_1	B_2	B_3	B_4			B_1	B_2	B_3	B_4	
01	10	4	5	5	24	31	12	5	6	6	29
02	11	6	6	6	29	32	26	8	6	6	46
03	0	1	0	0	1	33	25	8	9	9	51
04	2	4	3	2	11	34	7	2	4	3	16
05	24	8	9	9	50	35	19	7	7	8	41
06	24	8	8	8	48	36	4	4	5	4	17
07	14	7	9	7	37	37	13	8	5	6	32
08	25	8	7	7	47	38	24	8	9	9	50
09	24	8	9	9	50	39	26	8	9	9	52
10	18	6	8	7	39	40	13	7	5	8	33
11	26	7	8	9	50	41	26	8	9	9	52
12	26	8	9	9	52	42	25	8	9	9	51
13	21	8	9	9	47	43	24	8	9	9	50
14	25	8	9	9	51	44	26	8	7	7	48
15	25	8	9	9	51	45	26	8	9	9	52
16	25	8	9	9	51	46	25	8	9	9	51
17	21	7	7	6	41	47	26	8	9	9	52
18	25	8	9	9	51	48	25	8	9	9	51
19	26	8	9	9	51	49	20	8	9	9	46
20	25	8	9	9	51	50	25	8	9	9	51
21	26	8	9	9	52	51	26	8	9	9	52
22	26	8	9	9	52	52	25	8	9	9	51
23	24	8	9	9	50	53	25	8	9	9	51
24	26	8	9	9	52	54	26	8	9	9	52
25	26	8	9	9	52	55	24	8	9	9	50
26	25	8	9	9	51	56	25	8	9	9	51
27	26	8	9	9	52	57	26	8	9	9	52
28	26	8	9	9	52	58	25	8	9	9	51
29	26	8	9	9	52	59	25	8	9	9	51
30	24	8	9	9	50	60	26	8	9	9	52

*B_1 - Pointing to Words as One Reads Aloud (total possible score = 26)
B_2 - Locating Individual Target Words in Context (total possible score = 8)
B_3 - Pronouncing Individual Target Words in Context (total possible score = 9)
B4 - Pronouncing Individual Target Words in Isolation (total possible score = 9)

Total Score - Total possible is 52

Ability to Point to Words as One Reads Aloud (Test B_1)

Range of Scores (Total possible = 26)

Score	Number of Children
26	20
25	17
24	8
21	2
20	1
19	1
18	1
14	1
13	2
12	1
11	1
10	1
7	1
4	1
2	1
0	1
	N = 60

Seventy-five percent of the children in the sample of 60 obtained a score of 24 or better out of a total possible of 26 which indicated that they were able to make the spoken-written word match with little or no difficulty. Of the 17 children who achieved a score of 25, 13 of them said "going to" or just "going" while pointing to 'gonna.' In all 17 cases, the word 'die' following 'gonna' was correctly identified. Eight of the nine children who achieved a score of 24 had difficulty with 'gonna die' or 'I'm gonna.' 'Gonna die' was usually read as "going to die" with 'die' being pointed to as 'to' was pronounced. The four children who achieved scores of 21, 20, and 18 had difficulty with 'gonna' as did the children previously mentioned, but also had difficulty with 'away.' One child could not read 'away' and the other three said "a" for 'away' and "way" for 'the' which was the next word

in the text. The child who obtained a score of 19 was not able to read line three although it had been previously committed to auditory memory. Only the words 'the' and 'sky' were recognized, probably as sight words previously learned. This child was able to accurately point to individual words and read them aloud in the other lines. The rest of the children whose scores ranged from zero to 14 demonstrated a decreasing ability, reflected in the scores, to match the written poem with the memorized version. Some of them repeated parts of the poem accurately, but were unable to point to the corresponding words individually and/or repeated a part of the poem or an entire line of the poem while pointing to an entirely different line. Children with lower scores tended to look at the written poem word by word and attempted to identify sight words rather than relate it to the memorized poem. One child (score 11) said "give away the sky" while pointing to 'away,' "don't give away my pie" while pointing to 'sky,' and "alligator pie, alligator pie" while pointing to 'But.' Many of the children who obtained low scores on this task had had difficulty committing the poem to auditory memory.

Ability to Identify Target Words Within a Single Line (Test B_2)

Range of Scores (Total possible = 8)

Score	Number of Children
8	47
7	5
6	2
5	1
4	3
2	1
1	1
	N = 60

Most of the children were able to locate the target words in each of lines two, three, and four. All children with scores of 24, 25, or 26 on the previous task, except one (score 26) achieved a perfect score on locating the target words. Ten of the 13 children who made errors could not locate the word 'if' or pointed to another word when asked to locate 'if.' About half of these children pointed to other words when asked to locate 'give' and 'sky.' One child could not locate 'give' and one could not locate 'sky.' Neither attempted a guess. Another child who obtained a score of four attempted no guesses. All the children, except one, located 'pie' and all except two located 'my.' 'Some' and 'away' were also located by most of the children. Generally, children who had difficulty reading aloud and pointing to each word (previous task) tended to have difficulty locating the target words.

Ability to Identify Target Words Within the Context of a Four-Line Poem (Test B_3)

Range of Scores (Total possible = 9)

Score	Number of Children
9	43
8	3
7	4
6	3
5	4
4	1
3	1
0	1
	N = 60

Most of the children were able to pronounce the nine target words pointed out by the examiner although more children (17) had

errors than in the previous task (13). As in the last task, most (12, 11) of the 17 children were unable to identify 'if' and 'give.' In this task, 12 children were unable to identify 'away.' All of the children, except one, identified 'pie' and 'green.' Most of the children also identified 'my' and 'alligator.' Only one child obviously attempted to use context to aid in the identification of a word ('sky'). One child who was unable to identify any words (scores on previous tasks were 0 and 1 respectively), gave a multi-word response for six of the nine words (e.g., for 'my' said "don't give away the grass," for 'give' said "give away the sky").

Ability to Learn Sight Words from a Short Reading Experience (Test B_4)

Range of Scores (Total possible = 9)

Score	Number of Children
9	43
8	3
7	4
6	5
5	1
4	1
3	1
2	1
0	1
	N = 60

Most of the grade one children were able to identify the nine target words presented in isolation. Only one child commented about the familiarity of the words ("Those are all the words that were in the story."). Sixteen of the 17 children who made errors on this task had made errors on the previous task (pronouncing individual target

words in context). Fourteen of the 17 children did not identify 'away.' Twelve of them did not identify 'give' and nine did not recognize 'if.' Five children did not recognize 'alligator.' Almost all the children recognized 'pie,' 'my,' and 'green.' The same child who had previously given multi-word responses to individual words in context again produced mostly multi-word responses (e.g., for 'pie' said "don't give away," for 'my' said "I like my radio.").

Discussion

A majority of the sample of 60 children, after eight months of reading instruction, appeared to understand the speech-print relationship as measured by the four aspects in Test B. Generally, a child's performance score on one aspect of the speech-print relationship was similar to his performance score on each of the other aspects. General observations indicated that children who had the most difficulty memorizing the four-line poem auditorily also had the most difficulty understanding the relationship of the spoken word to the written word. Although the majority of children appeared to have an understanding of the speech-print relationship, achievement scores varied, which indicated that the children were at various stages in understanding the concept measured.

Awareness of Visual Word Boundaries (Test C)

Range of Scores (Total possible = 21)

Score	Number of Children
21	17
19	1
18	7
17	3
16	4
15	3
14	2
13	1
12	1
11	3
10	1
9	1
7	2
6	1
3	1
1	3
0	9
	N = 60

Seventeen children in the sample of 60 were able to indicate all the word boundaries in the three sentences written without the conventional printer's space between words. Only three children in the sample commented about the absence of the conventional white spaces between words ("There aren't finger spaces," "small spaces," "no spaces"). Seven of the children made all, or almost all of their divisions between letters, equating letters and words. One child considered each of the three sentences to be a word. Contrary to the findings of Kingston, Weaver, and Figa (1972), only a small number of errors resulted from omitting the division between two words (e.g., /andthe/). Most of these appeared to be careless omissions. Most of the children who made errors, except those who equated letters and

words, appeared to make some of the boundary divisions randomly; however, the majority of the divisions tended to be after an ascending or descending letter and/or before an ascending letter. While marking the divisions in sentence one, five children proceeded to work from right to left. One of these children worked from right to left on the third sentence.

To provide additional information about grade one children's concepts about printed word boundaries, all of the children were asked to mark the word boundaries in a sentence written in the conventional manner. Two children commented about the form of the sentence ("This is easy because it's all apart." "This is easy because they're far away."). One child marked the word boundaries from right to left as with two previous sentences. Four of the 60 children did not mark the boundaries accurately. One of these four neglected to mark just one division between two of the words in the sentence. Of the three remaining, two children, as with the three previous sentences, equated letters and words. One child marked only one word boundary, just before the last word in the sentence. Each of the three previous sentences had also been marked with only one division which appeared to be randomly chosen.

Explanation of Spaces between Words

Each child in the sample of nine was asked to explain the spaces between the words in the last sentence of Test C. Pointing to each of the spaces, the examiner asked, "Why are these spaces here?" The examiner did not refer to the terms 'word' or 'sentence' when requesting the information. The children's responses are summarized in Table 4.10.

Table 4.10

Summary of Explanations of White Spaces between Words

Type of Explanations	
3 referred to 'words'	"to be between these [pointing] words" "so they'll be easier" [Q] "so the words will be easier" "so the words don't get mixed up"
2 mentioned 'words' and 'reading'	"so you can read them" [Q] "the words" "so you can read it . . . so you don't think it's all one word"
2 mentioned a 'sentence' and understanding	"so it makes sense . . . that's why you have a sentence" "those are finger spaces . . . so you can understand the sentence . . . because if you didn't have finger spaces you couldn't understand it . . . it would say nothing"
1 referred to 'writing' a word	"for a finger space" [Q] "so you can understand the word that you are writing"
1 referred to 'words' but related it to the previous word boundary task	"so you can put lines between the words" [Q] "'cause they are after the words before you go on more"

More than two-thirds of the children in the present study were unable to accurately mark the boundaries between common words in sentence context when printed without the conventional printer's space between words, even after eight months of reading instruction. This supports the findings previously reported by Mickish (1974). Generally, improved scores on the second and/or third sentences indicated that some students may have benefitted from the additional auditory cue (having the sentence read). Performance on the fourth sentence appeared to demonstrate that the grade one children greatly benefitted from the spaces between the words in a sentence written in the conventional manner. Although most of the nine children referred to words when explaining the conventional spaces between words in a sentence, some of the children expressed only vague notions about the function of the printer's space.

Written Word Consciousness in Sentence Context (Test D)

Test D was administered to the sample of nine children.

Sentence One (When is the birthday party?)

A summary of each child's choice of shortest, easiest, longest, and hardest words for sentence one is presented in Table 4.11.

A summary of each child's explanation for his choice of words is presented in Table 4.12.

Table 4.11

Summary of Responses for Choices of Words for Sentence One
(When is the birthday_party?)

Pupil Number	Shortest	Easiest	Longest	Hardest
34	is	the	party	party
36	is	is	birthday	birthday
10	is	is	birthday	birthday
44	when	is	birthday	party
42	is	is	birthday	birthday
12	is	is	birthday	party
24	is	is	birthday	party
21	is	birthday	birthday	birthday
54	is	is	birthday	birthday

Table 4.12

Summary of Explanations for Choices of Words for Sentence One
(When is the birthday party?)

Type of Word	Type of Explanations	Examples
Shortest	8 used the number of letters as their criterion	"is . . . because it only has two letters"
		"is . . . because it's spelled with two letters"
		"is . . . because that one has the least letters in it"
	1 referred to the initial and final letters	"when . . . because it starts with a 'w' and ends with an 'n'"
Easiest	6 based their decision on the number of letters	"is . . . because that one has the least letters in it"
		"is . . . because it only has two letters in it"
		"is . . . because you can figure it out with two letters"
	1 mentioned that it had been learned previously	"is . . . because I taked it in grade one"
	1 referred to the two parts of the word	"birthday . . . because it has 'birth' and 'day'"
	1 equated it with saying something	"the . . . people say that"
Longest	4 referred to the number of letters	"birthday . . . because it has eight words, I mean letters,
		"birthday . . . 'cause it has the most letters"
	4 referred to the number of letters indirectly	"birthday . . . because they spell it long"

Table 4.12 (continued)

Type of Word	Type of Explanations	Examples
		"birthday . . . because it's bigger than this one [party]"
	1 had difficulty explaining the choice	"party . . . because it has . . . more longest"
Hardest	1 referred to number of letters and reading	"birthday . . . because it has eight words [letters] and I couldn't read it . . . some people"
	2 referred specifically to sound	"party . . . because it has an 'e' on the end"
		"party . . . because you can't sound it out"
	1 mentioned spelling	"birthday . . . because you don't know how to spell it good"
	4 referred to their general unfamiliarity with the word	"birthday . . . 'cause some people don't know it and some do"
		"birthday . . . because it has . . . it's more harder and we don't take that"
	1 referred to general unfamiliarity and the position of the word in the sentence	"party . . . because it's at the end of the words and it's hard to think about"

Sentence Two (Jack's puppy is a very friendly pet.)

A summary of each child's choice of shortest, easiest, longest, and hardest words for sentence two is presented in Table 4.13.

A summary of each child's explanations for his choice of words is presented in Table 4.14.

Discussion

When responding to Test D, two children said "words" when referring to 'letters.' One child responded this way consistently while the other one used the appropriate term 'letter' in one response.

The sample of nine children had a tendency to equate shortest and easiest and to equate longest and hardest. Most children correctly identified the shortest and longest words in each of the two sentences. Most of these children tended to objectively base this decision on the number of letters in a word. Many children also based the subjective decision of easiest word on the number of letters while a wider range of explanations was given for choice of harder word. Some children were not able to explain the reasons for their choices of words clearly.

Research Hypothesis One

There will be a significant relationship between grade one children's concepts of a word, measured by their scores for spoken word consciousness, awareness of visual word boundaries, and awareness of the speech-print relationship, and:

a. Reading Achievement
b. Sex
c. Age.

Table 4.13

Summary of Responses for Choices of Words for Sentence Two
(Jack's puppy is a very friendly pet.)

Pupil Number	Shortest	Easiest	Longest	Hardest
34	a	pet	friendly	very
36	is	a	friendly	puppy
10	a	a	friendly	friendly
44	pet	Jack's	very	friendly
42	a	a	friendly	friendly
12	a	pet	friendly	friendly
24	a	Jack's	friendly	friendly
21	a	a	friendly	friendly
54	a	a	friendly	friendly

Table 4.14

Summary of Explanations for Choices of Words for Sentence Two
(Jack's puppy is a very friendly pet.)

Type of Word	Type of Explanations	Examples
Shortest	8 based their selections on the number of letters directly or indirectly	"a . . . 'cause it's only one letter"
		"a . . . because it only has one word [letter]"
		"a . . . because it only has an /æ/ "
		"a . . . because it is just an 'a'"
		"is . . . because it has two letters"
	1 referred to the spelling	"pet .. . . because it's 'pet' . . . 'p' . . . 'e' . . . 'pet'"
Easiest	5 referred to the number of letters	"a . . . it only has one letter"
	1 referred to the number of letters and the sound	"a . . . because it's only one word [letter] and it's an /æ/ sound"
	1 mentioned familiarity with the word	"pet . . . because I already know it and it's got the word that we practised already"
	1 related the word to an object as well as saying something	"pet . . . because people have dogs and some people say 'get out'"
	2 selected names	"Jack's . . . 'cause it's a name and I can figure it out"

Table 4.14 (continued)

Type of Word	Type of Explanations	Examples
Longest	7 made choices on the basis of number of letters	"friendly . . . 'cause it's a long word and it has eight letters"
		"friendly . . . because it has lots of letters in it"
	1 compared the difficulty of the word to the other words	"friendly . . . it has more hard . . . it's more hardest than the other ones"
	1 referred to a letter name in the middle of the word	"very . . . 'cause it has an 'r' in the middle of it"
Hardest	5 based their choices on the number of letters	"friendly . . . because it has the most words [letters] in it"
		"friendly . . . because it has eight letters"
		"puppy . . . because it has more letters in there"
	2 referred to the difficulty in recognizing or saying the word	"friendly . . . because I don't know what it says"
		"friendly . . . 'cause it's very hard to say"
	1 mentioned spelling	"friendly . . . because you don't know how to spell it good"
	1 used saying the word as the criterion	"very . . . because people don't say that word"

Research hypothesis one was analyzed by using the Pearson product-moment correlation coefficient. All correlation coefficients were obtained by using DEST 02, a computerized statistical program maintained by the Division of Educational Research Services at the University of Alberta.

The Pearson product-moment correlation coefficients between each aspect of the grade one children's concepts of a word scores and reading achievement, sex, and age are presented in Table 4.15.

This analysis revealed no significant relationship between grade one children's concepts of a word and age or sex. It was, however, revealed that all correlations between each aspect of concept of a word and reading achievement were positive and that the majority of these correlations reached significance beyond the .0001 level. Because all of these correlations met the .05 level of significance, there is a statistically significant relationship between grade one children's concepts of a word (measured by their scores for spoken word consciousness, awareness of the speech-print relationship, awareness of visual word boundaries) and reading achievement.

Discussion

The finding that there is a positive, significant relationship between each of three aspects of grade one children's concepts of a word and reading achievement appears to support a similar finding by many other researchers (e.g., Ayres and Downing, 1979; Evanechko, Ollila, Downing, and Braun, 1973; Evans, Taylor, and Blum, 1979; Francis, 1973; Hall, 1976; Morris, 1980). That age was not found to be significantly correlated may, in fact, support Holden and

Table 4.15

Correlation Coefficients between Concept of a Word Scores and Reading Achievement Scores, Sex and Age

Concept of a Word Test	Gates MacGinitie Reading Achievement Tests									
	Vocabulary		Comprehension		Total		Sex		Age	
	r	p	r	p	r	p	r	p	r	p
1. Spoken Word Consciousness (Test A)	.296	.022*	.345	.007	.330	.01	-.070	.596	.128	.328
2. Pointing to a word as one reads aloud (Test B_1)	.600	<.0001	.581	<.0001	.607	<.0001	.049	.713	.022	.867
3. Locating individual target words in context (Test B_2)	.543	<.0001	.514	<.0001	.544	<.0001	.079	.550	-.032	.809
4. Pronouncing individual target words in context (Test B_3)	.584	<.0001	.591	<.0001	.605	<.0001	.036	.783	-.036	.782
5. Pronouncing individual target words in isolation (Test B_4)	.604	<.0001	.580	<.0001	.609	<.0001	.079	.549	-.058	.659
6. Speech-Print Relationship (Test B total)	.607	<.0001	.579	<.0001	.610	<.0001	.077	.557	-.020	.879
7. Visual Word Boundaries (Test C)	.680	<.0001	.733	<.0001	.727	<.0001	.079	.547	.104	.428

*Note: Correlations significant at .05 level.

MacGinitie's (1973) contention that age as related to exposure to reading instruction may be an indirect factor in determining word awareness which in turn may be significantly correlated with reading achievement. That sex was not found to be significantly correlated with children's concepts of a word appears to support the research of Downing (1979) and his statement that "many of our ideas about the different abilities of boys versus girls may be nothing more than myths" (p. 129). The fact that the correlation between spoken word consciousness and reading achievement was not as high as the correlations between awareness of the speech-print relationship and between awareness of visual word boundaries may support a statement made by Ehri (1979). She hypothesized "that whether or not a child notices word-boundary markers and whether or not he can coordinate written and spoken language is very likely regulated by his ability to recognize the printed words comprising the sentences" (p. 88). As suggested by Ehri, Tests B and C may have tested word recognition abilities indirectly.

Research Hypothesis Two

> There will be significant differences in the scores of grade one children, grouped by reading achievement, on each of three aspects (spoken word consciousness, awareness of the speech-print relationship, awareness of visual word boundaries) of concept of a word.

Research hypothesis two was tested through a two-way analysis of variance. The results for each of Tests A, B, and C are reported in Tables 4.16, 4.17, and 4.18 respectively.

Table 4.16

Two-way Analysis of Variance of Spoken Word Consciousness (Test A) by Sex and Reading Achievement Groups

Source	SS	df	MS	F-ratio	Probability
A (reading achievement)	20.933319	2	10.466660	2.907195	.06322
B (sex)	1.066666	1	1.066666	.296275	.58847
AB	194.414063	2	1.266665	.351826	.70501

Table 4.17

Two-way Analysis of Variance of Four Measures of the Speech-Print Relationship (Test B) by Sex and Reading Achievement Groups

Test	Source	SS	df	MS	F-ratio	Probability
B_1	A (reading achievement)	1074.432373	2	537.216064	19.800232	<.000001
	B (sex)	6.016664	1	6.016664	.221757	.63960
	AB	9.433331	2	4.716665	.173843	.84090
B_2	A (reading achievement)	38.633224	2	19.316605	11.325567	<.00008
	B (sex)	.816666	1	.816666	.478821	.49192
	AB	.633333	2	.316666	.185665	.83108
B_3	A (reading achievement)	79.033218	2	39.516602	17.462158	<.000001
	B (sex)	.266667	1	.266667	.117838	.73273
	AB	.233333	2	.116666	.051554	.94980
B_4	A (reading achievement)	82.299805	2	41.149902	16.923630	<.000001
	B (sex)	1.349999	1	1.349999	.555212	.45943
	AB	1.899998	2	.949999	.390704	.67848
B_{Total}	A (reading achievement)	2991.098633	2	1495.549316	18.254379	<.000001
	B (sex)	45.066650	1	45.036650	.550075	.46150
	AB	60.433182	2	30.216583	.368818	.69328

B_1 = Pointing to Words as One Reads Aloud
B_2 = Locating Individual Target Words in Context
B_3 = Pronouncing Individual Target Words in Context
B_4 = Pronouncing Individual Target Words in Isolation

Table 4.18

Two-way Analysis of Variance of Awareness of Visual Word Boundaries (Test C) by Sex and Reading Achievement Groups

Source	SS	df	MS	F-ratio	Probability
A (reading achievement)	1464.632080	2	732.315918	18.652359	<.000001
B (sex)	22.816650	1	22.816650	.581149	.44918
AB	12.633333	2	6.316667	.160888	.85180

There was no significant difference among reading achievement groups or by sex on spoken word consciousness although main effect A (reading achievement, p = .06322) on spoken word consciousness approached the acceptable .05 level of significance.

A significant difference was revealed among reading achievement groups on each of the four measures (B_1, B_2, B_3, B_4) of the speech-print relationship.

A significant difference was revealed among reading achievement groups on awareness of visual word boundaries.

Scheffé Multiple Comparisons

The two-way analysis of variance revealed significant differences (beyond the .05 acceptable level of confidence) among reading achievement groups on all aspects of concept of a word except spoken word consciousness (Test A). This finding prompted further analysis to determine where the differences lay. The three reading achievement groups were compared by the Scheffé procedure. The results for Test B are presented in Table 4.19 and the results for Test C are presented in Table 4.20.

The Scheffé test indicated that mean comparisons on each of the four measures (B_1, B_2, B_3, B_4) of the speech-print relationship reached significant levels between the low and average achieving readers and between the low and high achieving readers. There were no significant differences of mean comparisons between the average and high achieving readers. This may indicate that Test B was not powerful enough to distinguish the performance of the average from the high achieving readers or, on the other hand, perhaps both of

Table 4.19

Scheffé Multiple Comparisons of Means between Reading Achievement Groups on Four Measures (B_1, B_2, B_3, B_4) of the Speech-Print Relationship (Test B)

Test	Reading Achievement Groups	F-Ratio	Probability
B_1	Low - Average	13.47174	<.00001
	Low - High	16.11069	<.00001
	Average - High	.11794	.8890
B_2	Low - Average	7.98117	.0009
	Low - High	8.97788	.0004
	Average - High	.02932	.9711
B_3	Low - Average	11.68809	.0001
	Low - High	14.36708	<.00001
	Average - High	.13809	.8713
B_4	Low - Average	11.35613	.0001
	Low - High	13.90083	<.00001
	Average - High	.12852	.8797
B_{Total}	Low - Average	12.30591	<.00001
	Low - High	14.94740	<.00001
	Average - High	.12831	.8798

B_1 = Pointing to Words as One Reads Aloud
B_2 = Locating Individual Target Words in Context
B_3 = Pronouncing Individual Target Words in Context
B_4 = Pronouncing Individual Target Words in Isolation

Table 4.20

Scheffé Multiple Comparisons of Means between Reading Achievement Groups on Awareness of Visual Word Boundaries (Test C)

Reading Achievement Groups	F-Ratio	Probability
Low - Average	4.35830	.0176
Low - High	18.64588	<.00001
Average - High	4.97468	.0104

these reading achievement groups had acquired adequate concepts of the speech-print relationship, but differed on some other aspect of concept of a word not measured and/or on other aspects of reading.

The Scheffé test indicated that mean comparisons on awareness of visual word boundaries reached a level of significance beyond the .05 acceptable level of significance between each of the three reading achievement groups.

Discussion

The three reading achievement groups did not differ significantly on spoken word consciousness although there was a significant difference between the low and average achieving groups and between the low and high achieving groups on all four measures of the speech-print relationship. Each of the three reading achievement groups differed significantly on awareness of visual word boundaries. The fact that the three reading achievement groups did not differ on spoken word consciousness may have resulted because common, familiar words were used as the auditory stimuli. Significant differences may have been found if the same test had been administered in the early months of grade one before reading instruction had progressed beyond the initial stages. The fact that there were no significant differences between the average and high achieving readers may indicate that the tests did not accommodate the full capabilities of the high achieving readers.

Summary

This chapter has presented the findings relevant to the research question and the two research hypotheses

Relevant to the Research Question

The children demonstrated differences in their concepts of a spoken and written word, the speech-print relationship, and visual word boundaries. There was a tendency for the children to equate a spoken word with an object and/or an action or with saying something. Most of them responded on a concrete level, providing subjective explanations related to personal experiences. A few were unable to match a spoken word with its written counterpart even after eight months of reading instruction. About one-third of the children were able to correctly segment written sentences, printed without spaces between the words, but 56 of the 60 children could correctly segment a sentence printed in the conventional manner. Most of the children were able to identify the longest and shortest words in printed sentences and in selecting the easiest and hardest words, tended to equate shortest with easiest and longest with hardest.

Relevant to Research Hypothesis One

A significant relationship was found between three aspects of children's concepts of a word and their reading achievement. The highest correlation was between awareness of visual word boundaries and reading achievement ($r = .680$, $p < .0001$) followed by the correlation between awareness of the speech-print relationship and

reading achievement ($r = .607$, $p < .0001$). The lowest correlation was between spoken word awareness and reading achievement ($r = .296$, $p = .022$).

Relevant to Research Hypothesis Two

The three reading achievement groups did not differ significantly ($p = .06322$) on spoken word consciousness although the differences on this variable approached the .05 level of significance. The low achieving readers differed significantly from the average and high achieving readers ($p < .00001$) on awareness of the speech-print relationship. There was no significant difference ($p = .8798$) between the average and high achieving readers. There were significant differences between each of the three reading achievement groups (low - average, $p = .0176$; low - high, $p < .00001$; average - high, $p = .0104$) on awareness of visual word boundaries. The greatest difference was between the low and high achieving readers.

Chapter 5

SUMMARY, FINDINGS, CONCLUSIONS, IMPLICATIONS, AND SUGGESTIONS FOR FURTHER RESEARCH

Summary

The purpose of this study was to describe four aspects (spoken word consciousness, awareness of the speech-print relationship, awareness of visual word boundaries, written word consciousness) of grade one children's concepts of a word. This study also investigated a possible correlation for each of three of these aspects (spoken word consciousness, awareness of the speech-print relationship, awareness of visual word boundaries) with reading achievement, sex, and age.

A sample of 60 grade one children, with 10 girls and 10 boys in each of three predefined reading achievement groups (low, average, high) was randomly selected after the administration of Level A, Form 1 of the Gates-MacGinitie Reading Tests (1979) to each of nine classes in a large urban Alberta school system. The Concept of a Word Test, a modified four-part composite of instruments used in four research studies, was individually administered to each of the 60 children. Fifty-one children completed only the parts of the test for which scores could be obtained, while the other nine children completed all parts of the test in order to provide additional information about the four aspects of grade one children's concepts of a word. All tests were administered by the researcher.

The information provided by the sample of nine children and

related to the research question was analyzed descriptively. For research hypothesis one, the Pearson product-moment correlation was used to investigate a possible correlation between each of three aspects of concept of a word and reading achievement, sex, and age. For research hypothesis two, a two-way analysis of variance was used to determine whether there were any significant differences among the three reading achievement groups or between the sexes on the dependent variables (Tests A, B [B_1, B_2, B_3, B_4, total], C) in the study. Where significant differences were found, the Scheffé Multiple Comparisons of Means was used to determine the specific source of the differences. A probability level of .05 was adopted for research hypotheses one and two. The results of these analyses are reported in the following sections.

Findings

Research Question

The research question asked: Will there be differences in four aspects (spoken word consciousness, awareness of the speech-print relationship, awareness of visual word boundaries, written word consciousness) of grade one children's concepts of a word which can be observed and reported descriptively? The following main observations were noted from the responses collected which related to this question and are accompanied by a limited number of examples.

Spoken Word Consciousness (Test A)

1. Based on the average number of correct responses for each class of words, the nouns were most consistently recognized as being

words (an average of about 59 out of 60), followed by the adjective, the function words, the adverb, and finally the verbs (an average of about 51 out of 60). What was most surprising was that the function words were more consistently recognized as words than were the verbs. The children performed noticeably lower on the phrases than on the word classes.

2. From about 60% to 77% of the sample of 60 children thought that each of the phrases was a word. Of the three phrases presented, 'up and down' was least often recognized as not being a word and 'from the house' was most often recognized as not being a word.

3. Although a majority of the children usually equated each of the spoken words with an object and/or an action or equated a word with saying something, the responses for each word varied in content and level of word awareness, indicating differences between children and within any one child in spoken word consciousness.

4. When questioned about words, the children usually based their responses on subjective criteria related to their own experiences.

5. Most of the children responded on a concrete level. Some of the children equated the word itself with the object, action, emotion, or condition making it a necessary part of the particular object, action, emotion, or condition.

6. The children provided varied responses when asked to define a word. For example, while some children gave more subjective responses (e.g., "because there's a lot of words around the place . . . some people like saying lots of words to people"), others related their answers to print (e.g., "if you read it").

7. The children provided a variety of responses and explanations when they were asked to provide a long, a short, an easy, a hard, and an invented word. The children found it most difficult to provide an invented word and thus had to reflect more on their explanations (e.g., "strawslurp . . . 'cause they do slurp"). Other responses referred to such things as the number of letters, sounds, spelling, and ease in recognizing the word.

8. Generally, it appeared that the low achieving readers required the most time and had the most difficulty in providing explanations of their responses.

Awareness of the Speech-Print Relationship (Test B)

1. A majority of the grade one children demonstrated a good understanding of the speech-print relationship; however, the range of scores indicated that the children were at various stages in their understanding of this concept.

Awareness of Visual Word Boundaries (Test C)

1. A wide range of scores, from 0 to 21 (total possible = 21), was evidenced on the visual word segmentation task for sentences written without the conventional printer's space.

2. Close to one-third of the children were able to correctly identify the visual word boundaries when sentences were printed without the conventional spaces between words. About one-third of the children obtained a score of 11 or less with nine children receiving a score of 0. The number of children receiving scores ranging from 1 to 17 appeared to be fairly evenly distributed.

3. The auditory stimulus (having the sentence read orally by the examiner) appeared to be an aid to visual word segmentation.

4. A few children equated letters and words.

5. The majority of errors (incorrect word divisions) tended to be after an ascending or descending letter and/or before an ascending letter.

6. Fifty-six of the 60 children were able to mark the word boundaries in a sentence written in the conventional manner.

7. Although seven of the nine children referred to words when explaining the white spaces, a few of them expressed only vague notions about the function of the spaces between words (e.g., "for a finger space" [Q] "so you can understand the word that you are writing," "so you can put lines between the words" [Q] "'cause they are after the words before you go on more").

Written Word Consciousness (Test D)

1. Most of the children used objective criteria for selecting the shortest and the longest words. For example, for each of the two sentences on the written word task, eight children based their choices of the shortest word on the number of letters and four children based their choices of the longest word on the number of letters.

2. Responses were more varied in explaining choices of easiest and hardest words. For example, on sentence two only four children based their choices of easiest word on the number of letters and only one child based the choice of hardest word on the number of letters. Other responses referred to such things as sounds, spelling, and general familiarity or unfamiliarity with the words.

3. Most of the children equated the shortest with the easiest word as well as the longest with the hardest word.

Research Hypothesis One

Research hypothesis one stated: There will be a positive significant relationship between grade one children's concepts of a word, measured by their scores for spoken word consciousness, awareness of the speech-print relationship, and awareness of visual word boundaries, and:

a. Reading achievement

b. Sex

c. Age.

The research hypothesis was accepted for the relationship between each of the three aspects of concept of a word and reading achievement, but was rejected for the relationship between each of the three aspects of concept of a word and sex and age. The highest correlation was between awareness of visual word boundaries and reading achievement ($r = .680$, $p < .001$) followed by a correlation of .607 ($p < .0001$) between awareness of the speech-print relationship and reading achievement. The lowest correlation ($r = .296$, $p = .022$) was between spoken word consciousness and reading achievement.

Research Hypothesis Two

Research hypothesis two stated: There will be significant differences in the scores of grade one children, grouped by reading achievement, on each of three aspects (spoken word consciousness, awareness of the speech-print relationship, awareness of visual word boundaries) of concept of a word. The research hypothesis was rejected

on one of the three aspects of concept of a word. There were no significant differences among reading achievement group scores on spoken word consciousness. The hypothesis was accepted on the other two aspects of concept of a word: awareness of the speech-print relationship and awareness of visual word boundaries. The low achieving readers differed significantly ($p < .0001$) from the average and high achieving readers on awareness of the speech-print relationship with no significant differences found between the average and high achieving readers. There were significant differences ($p < .01$) between each of the reading achievement groups on awareness of visual word boundaries with the greatest significant difference ($p < .00001$) being between the low and high achieving readers.

Conclusions

The following conclusions were drawn from the findings of this study and those replicated, keeping in mind the assumptions and limitations noted in Chapter 1 and the nature of the sample of grade one children from a large urban Alberta school system.

1. A majority of children in similar populations of grade one children could be expected to have immature concepts of what constitutes a spoken word in that the children's concepts of a word would not correspond with adults' concepts. It could be expected that the children's notions of a spoken word would not always correspond to the conventional spoken word unit as evidenced on Test A where a majority of children thought that each of the phrases was a word.

2. For children in similar populations, it could be expected

that a majority of children near the end of grade one would have a good understanding of the speech-print relationship in that they would be aware of the relationship of a spoken word and its written counterpart. It could be expected that a few children would be unable to make this match and that they would not be able to follow a visual representation of a poem, for example, memorized auditorily.

3. About one-third of the grade one children in similar populations could be expected to correctly mark the visual word boundaries in sentences printed without the conventional spaces between words. For about 60% of the children who would make errors, it could be expected that visual segmentation scores would improve if the visual stimulus to be segmented was read aloud to them prior to the task. There would undoubtedly be some improvement in scores due to the practice effect.

4. In segmenting a conventionally written sentence into word units, it could be expected that children in a similar population would be greatly aided by the spaces between the words although it could be expected that a few children, especially the low achieving readers, would have difficulty verbalizing the function of the spaces.

5. In selecting specified written word units in a sentence context, most grade one children in a similar population could be expected to equate the shortest with the easiest word and the longest with the hardest word.

6. When questioned about a word, it could be expected that most of the children in a similar population would relate a word to an object and/or an action or to saying something.

7. When questioned about their concepts of a word, most of the children in similar populations could be expected to provide subjective responses, related to their own experiences. It could also be expected that these responses would be expressed at a concrete level.

8. For grade one children in a similar population, it could be expected that their concepts of a word, measured by spoken word consciousness, awareness of the speech-print relationship, and awareness of visual word boundaries, would be positively correlated with reading achievement.

9. It could be expected that low achieving readers, similar to the ones in the present study, would differ significantly from average and high achieving readers in the understanding of the speech-print relationship and that the average and high achieving readers would not differ significantly on a task similar to Test B.

10. Grade one children in similar populations, grouped by reading achievement as in the present study, could be expected to differ significantly in their awareness of visual word boundaries when segmenting sentences printed without the conventional spacing between words. A few children could be expected to equate words with letters.

Implications

From the main findings of this study and the resulting conclusions, the following implications are suggested for the teaching of beginning reading to children in similar populations.

1. Generally, the present study suggested that children have

vague and inexact notions about what words are. It appears that teachers cannot assume that each child will have a concept sufficiently developed to be useable in instruction with the teacher. Also, a child's concept of a word in the oral context may differ from the visual context. This implies that a sense of 'word' should be developed gradually through inductive teaching methods and varied experiences with spoken and written language. One might begin by reading to children from a wide range of literature so that the child first develops an understanding of the nature of written language.

2. The present study suggested that beginning readers' concepts of a word, spoken and written, may not correspond to conventional word units. This implies that children need much experience with spoken and written language where they can become familiar with the functions of and relationships between spoken and written language before beginning reading instruction. In the early months of reading instruction, the Key Vocabulary strategy could be used where single words, especially important to the children, are elicited from each child and recorded for him by the teacher. In this way, only words which are meaningful to each child would be used and the child begins to see a relationship between speech and print. This strategy also has implications for diagnosis of the child's needs for program planning as the Key Vocabulary records provide an indication of the child's understanding of the reading instruction register. For example, a child's understanding of the term 'word' would be evident in his response where he gave a sentence when asked to give a word (Blakey, 1980).

The language experience approach to teaching language arts would also provide children with relevant experiences related to spoken and written language. In this way, children would be involved in inductive teaching through a wide range of concrete experiences. The teacher who was cognizant of the fact that children develop technical linguistic concepts gradually, such as of 'a word,' could emphasize specific aspects of a concept whenever possible. This would enable the children to formulate their own generalizations (e.g., about words) and to develop naturally in their understanding of 'a word' and other technical, linguistic terms while still working at a concrete level.

To continue the gradual development in understanding of a spoken and written word, as well as other technical terms, it would seem important to encourage children to become involved in their own writing as soon as possible. This would make the functions of reading and writing even more evident as well as aid in the further development in understanding of technical concepts.

3. The present study suggested that some of the low achieving readers, even after eight months of reading instruction were unable to match the spoken word with its written counterpart. This suggests that such practices as round robin reading could be very difficult and frustrating in a group setting because some of these children can't even follow. Working on a particular aspect of the speech-print relationship in pairs or small groups where the teacher or a specified child could point to the visual representation of each word as it was read orally would be more profitable. In addition to the

strategies suggested previously, perhaps the procedure used in Test B (from the Concept of a Word Test) with the poem "Alligator Pie" would be a beneficial classroom technique to facilitate the understanding of how spoken words are represented in text. For examole, prior to seeing the visual representations of a poem or a song, it could be practised and learned auditorily.

4. The study supported the need for developing concepts (e.g., of a word) and necessary metalinguistic skills before beginning formal analysis of words. For example, it appears that phonics instruction which involves the explicit analysis of words into their grapheme-phoneme correspondences would be most beneficial and relevant after the children had grasped the nature of written language and had an understanding of the terms used in the reading instruction register. In addition, such an approach would require that the children be at a stage where they were able to see the word as an abstract entity. This ability was demonstrated by only a few children in the present study. For this reason, children who are working at a concrete level may benefit most from programs which emphasize larger units of meaning and provide concrete experiences (e.g., Key Vocabulary, language experience teaching approach).

5. The present study suggested that such aspects of concept of a word as spoken word consciousness, awareness of the speech-print relationship, and awareness of visual word boundaries are positively correlated with reading achievement. Perhaps tests which assess abilities related to these aspects could be used to determine reading readiness for grade one instruction in reading, to predict reading

achievement, and/or as a diagnostic test to provide direction for the teacher. For example, by being able to focus on specific needs related to the development of concept of a word, the teacher could plan more appropriately focussed instruction and therefore help to eliminate future problems caused by an immature or inaccurate concept.

Suggestions for Further Research

The following suggestions are made for further research into children's concepts of a word.

1. The findings in the present study suggested that children's concepts of a word may be immature even after eight months of reading instruction in grade one. A more detailed study in grade one would be warranted. It is suggested that similar research be conducted with children in grades two and three to explore further the development of this concept of 'word.' This may best be accomplished by conducting a longitudinal study which would follow a group of children through their first two or three years of school. In this way, possible developmental trends could be noted.

2. In this study, three aspects of concept of a word were found to be positively correlated with reading achievement. The Concept of a Word Test could be further refined and expanded to permit more precise assessment of a child's concept of a word. Further research could also be conducted to explore the concepts of a word of children in resource rooms or of children whose general reading progress has been retarded. Another factor worthy of investigation may be the influence of reading instruction method (e.g., phonics, language

experience, basal reader) on children's concepts of a word.

3. The present findings suggested that there may be developmental levels of word awareness. It is recommended that research be conducted to specifically investigate levels of word awareness and that this research include older children. Perhaps such research would contribute to the findings of Papandropoulou and Sinclair (1974) and Templeton and Spivey (1980) by providing more extensive information about their level four (the level at which the word is fully understood in terms of its signifactory and structural aspects) or possibly even more advanced levels of word awareness.

4. Research investigating developmental trends in visual and auditory segmentation is also suggested. As the present study included a very limited segmentation task (i.e., common words, sentences with similar syntactic structures), it is recommended that further research be conducted to investigate the segmentation of sentences written conventionally, but with varying word length and sentence length. Because of limited research, it is also recommended that tasks be developed to compare word segmentation in the aural and visual contexts.

5. The present study attempted to ascertain grade one children's concepts of only one term, a word. A further study dealing with other technical terms (e.g., sound, letter, sentence) could be conducted to explore concepts held and possible relationships. A possible hierarchical order in the learning of these terms could be investigated.

6. The present study did not find significant differences between the average and high achieving readers on spoken word consciousness or

awareness of the speech-print relationship. The present Concept of a Word Test could be adapted for suitability at the upper range of reading achievement to see if or how these readers differ further in their concepts of a word.

7. Programs could be developed to specifically aid in the development of concept of a word and other related concepts which have been shown to be correlated with reading achievement. One such example could be the development of an introductory program which would provide the children with readiness instruction on basic reading concepts which would be related to and could be incorporated into formal reading instruction.

Concluding Statement

This study found that three aspects of grade one children's concepts of a word were positively correlated with their reading achievement. This suggests that children's perceptions of words, and possibly of reading in general, are intricately interwoven with the development of their reading abilities rather than that their perceptions are prerequisite to this development as indicated in the Introduction. Teachers, therefore, should consider children's perceptions of words when planning for and implementing reading instruction in the classroom.

REFERENCES

REFERENCES

Allan, K. K. The development of young children's metalinguistic understanding of "letter," "word," and "sentence." Madison: Wisconsin University, 1979. (ERIC Document Reproduction Service No. ED 184 106)

Alston, W. P. Philosophy of language. Englewood Cliffs, N.J.: Prentice-Hall, 1964.

Ayres, D., & Downing, J. The development of linguistic concepts and reading achievement. Paper presented at the IRA/University of Victoria International Research Seminar on Linguistic Awareness and Learning to Read, Victoria, B.C., June, 1979.

Blakey, J. M. An investigation of the relationship between children's key vocabulary responses and certain Piagetian concepts. Unpublished doctoral dissertation, University of British Columbia, 1980.

Cazden, C. B. Child language and education. New York: Holt, Rinehart and Winston, 1972.

Clark, E. V. Awareness of language: Some evidence from what children say and do. In A. Sinclair, R. J. Jarvella, & W. J. M. Levelt (Eds.), The child's conception of language. New York: Springer-Verlag, 1980.

Clay, M. M. Reading errors and self-correction behaviour. British Journal of Educational Psychology, 1969, 39(1), 47-56.

Day, K. C., & Day, H. D. Development of kindergarten children's understanding of concepts about print and oral language. In M. L. Kamil & A. J. Moe (Eds.), Reading research: Studies and applications (Twenty-eighth yearbook of the National Reading Conference). Clemson, South Carolina: National Reading Conference, 1979.

Day, K. C., Day, H. D., & Griffen, M. The development of orthographic linguistic awareness in kindergarten children and the relationship of this awareness to later reading achievement. Reading Psychology, 1981, 2(2), 76-87.

Downing, J. Children's concepts of language in learning to read. Educational Research, 1970a, 12(2), 106-112.

Downing, J. The development of linguistic concepts in children's thinking. Research in the Teaching of English, 1970b, 4(1), 5-19.

Downing, J. Children's developing concepts of spoken and written language. Journal of Reading Behavior, 1971-1972, 4(1), 1-19.

Downing, J. How children develop concepts of language. In C. Braun (Ed.), Language, reading, and the communication process. Newark, Delaware: International Reading Association, 1971.

Downing, J. The reading instruction register. Language Arts, 1976, 53(7), 762-766.

Downing, J. Reading and reasoning. Edinburgh: Chambers, 1979.

Downing, J., & Oliver, P. The child's conception of 'a word.' Reading Research Quarterly, 1973-1974, 9(4), 568-582.

Downing, J., & Thomson, D. Sex role stereotypes in learning to read. Research in the Teaching of English, 1977, 11(2), 149-155.

Ehri, L. C. Word consciousness in readers and prereaders. Journal of Educational Psychology, 1975, 67(2), 204-212.

Ehri, L. C. Beginning reading from a psycholinguistic perspective: Amalgamation of word identities. In L. C. Ehri, R. W. Barron, & J. W. Feldman (Eds.), The recognition of words. Newark, Delaware: International Reading Association, 1978.

Ehri, L. C. Linguistic insight: Threshold of reading acquisition. In T. G. Waller & G. E. MacKinnon (Eds.), Reading research: Advances in theory and practice (Vol. 1). New York: Academic Press, 1979.

Evanechko, P., Ollila, L., Downing, J., & Braun, C. An investigation of the reading readiness domain. Research in the Teaching of English, 1973, 7(1), 61-78.

Evans, M. C. Children's ability to segment sentences into individual words. In G. H. McNinch & W. D. Miller (Eds.), Reading: Convention and inquiry (Twenty-fourth yearbook of the National Reading Conference). Clemson, South Carolina: The National Reading Conference, 1975.

Evans, M., Taylor, N., & Blum, I. Children's written language awareness and its relation to reading acquisition. Journal of Reading Behaviour, 1979, 11(1), 7-19.

Fox, B., & Routh, D. K. Analyzing spoken language into words, syllables, and phonemes: A developmental study. Journal of Psycholinguistic Research, 1975, 4(4), 331-342.

Francis, H. Children's experience of reading and notions of units of language. The British Journal of Educational Psychology, 1973, 43(1), 17-23.

Francis, W. N. The structure of American English. New York: The Ronald Press Company, 1958.

Goodman, K. S. Words and morphemes in reading. In K. S. Goodman & J. T. Fleming (Eds.), Psycholinguistics and the teaching of reading. Newark, Delaware: International Reading Association, 1977.

Hall, N. A. Children's awareness of segmentation in speech and print. Reading, 1976, 10(1), 11-19.

Hardy, M., Stennet, R. G., & Smythe, P. C. Auditory segmentation and auditory blending in relation to beginning reading. Alberta Journal of Educational Research, 1973, 19(2), 144-158.

Hardy, M., Stennet, R. G., & Smythe, P. C. Development of auditory and visual language concepts and relationship to instructional strategies in kindergarten. Elementary English, 1974, 51(4), 525-532.

Henderson, E. H. Developmental concepts of word. In E. H. Henderson & J. W. Beers (Eds.), Developmental and cognitive aspects of learning to spell: A reflection of word knowledge. Newark, Delaware: International Reading Association, 1980.

Hockett, C. G. A course in modern linguistics. New York: The Macmillan Company, 1958.

Holden, M. H. Word awareness, reading and development. Perceptual and Motor Skills, 1977, 44, 203-206.

Holden, M. H., & MacGinitie, W. H. Children's conceptions of word boundaries in speech and print. Journal of Educational Psychology, 1972, 63(6), 551-557.

Holden, M. H., & MacGinitie, W. H. Metalinguistic ability and cognitive performance in children from five to seven. Paper presented at the meeting of the American Educational Research Association, New Orleans, February, 1973. (ERIC Document Reproduction Service No. ED 078 436)

Hopkins, K. D., & Glass, G. V. Basic statistics for the behavioral sciences. Englewood Cliffs, New Jersey: Prentice-Hall, 1978.

Huttenlocher, J. Children's language: Word-phrase relationship. Science, 1964, 143(3603), 264-266.

Johns, J. L. Children's conceptions of a spoken word: A developmental study. Reading World, 1977, 16(4), 248-257.

Johns, J. L. First graders' concepts about print. Reading Research Quarterly, 1980, 15(4), 529-549.

Johnson, M. S. Word perception in the reading-thinking process. In M. S. Johnson & R. A. Kress (Eds.), Reading and thinking (Proceedings of the 22nd Annual Reading Institute at Temple University of the Commonwealth System of Higher Education). Philadelphia, Pennsylvania: The 1965 Annual Reading Institute, 1965.

Karpova, S. N. Osoznanie slovesnogo sostava rechi rebenkom doshkol'nogo vozrasta. [The preschooler's realization of the lexical structure of speech.] Voprosy. Psikhol., 1955, 4; 43-55. In F. Smith and G. Miller (Eds.), Genesis of language. Cambridge, Mass.: The MIT Press, 1966, 370-371. (Abstract)

Kingston, A. J., Weaver, W. W., & Figa, L. E. Experiments in children's perceptions of words and word boundaries. In F. P. Greene (Ed.), Investigations relating to mature reading (Twenty-first Yearbook of the National Reading Conference). Milwaukee, Wisconsin: The National Reading Conference, 1972.

Lefevre, C. A. Linguistics and the teaching of reading. New York: McGraw-Hill, 1964.

Lindfors, J. W. Children's language and learning. Englewood Cliffs, New Jersey: Prentice-Hall, 1980.

Lundberg, I. Aspects of linguistic awareness related to reading. In A. Sinclair, R. J. Jarvella & W. J. M. Levelt (Eds.), The child's conception of language. New York: Springer-Verlag, 1980.

Lundberg, I., & Tornéus, M. Nonreaders' awareness of the basic relationship between spoken and written words. Journal of Experimental Child Psychology, 1978, 25(3), 404-412.

MacGinitie, W. H. Gates-MacGinitie reading tests, Level A, Form 1. Don Mills, Ontario: Thomas Nelson & Sons (Canada), 1979.

MacGinitie, W. H., Kamons, J., Kowalski, R. L., MacGinitie, R. K., & MacKay, T. Gates-MacGinitie reading tests, Level A, Forms 1, 2 (Canadian edition, Teacher's manual). Don Mills, Ontario: Nelson Canada, 1980.

McLaughlin, J. L. Grade-one children's concepts of purposes for reading and of selected components of written language. Unpublished master's thesis, University of Alberta, 1978.

McNinch, G. H. Auditory perceptual factors and measured first-grade reading achievement. Reading Research Quarterly, 1971, 6, 472-492.

McNinch, G. Awareness of aural and visual word boundary within a sample of first graders. Perceptual and Motor Skills, 1974, 38, 1127-1134.

Meltzer, N. S., & Herse, R. The boundaries of written words as seen by first graders. Journal of Reading Behavior, 1969, 1(3). 3-15.

Mickish, V. Children's perceptions of written word boundaries. Journal of Reading Behavior, 1974, 6(1), 19-22.

Morris, D. Beginning readers' concept of word. In E. H. Henderson, E. J. W. Beers (Eds.), Developmental and cognitive aspects of learning to spell: A reflection of word knowledge. Newark, Delaware: International Reading Association, 1980.

Papandropoulou, I., & Sinclair, H. What is a word? Human Development, 1974, 17, 241-258.

Piaget, J. [Judgement and reasoning in the child] (C. K. Ogden, Ed., M. Warden, trans.). Totowa, New Jersey: Littlefield, Adams & Co., 1976. (Originally published, 1928.)

Reid, J. F. Learning to think about reading. Educational Research, 1966, 9(1), 56-62.

Robertson, J. E. Kindergarten perception training: Its effect on first grade reading. In H. K. Smith (Ed.), Perception and reading (Vol. 12). Newark, Delaware: International Reading Association, 1968.

Rozin, P., Bressman, B., & Taft, M. Do children understand the basic relationship between speech and writing? The mow-motorcycle test. Journal of Reading Behavior, 1974, 6(3), 327-334.

Slobin, D. I. A case study of early language awareness. In A. Sinclair, R. J. Jarvella & W. J. M. Levelt (Eds.), The child's conception of language. New York: Springer-Verlag, 1980.

Stanchfield, J. M. The sexual factor in language development and reading. In C. Braun (Ed.), Language, reading, and the communication process. Newark, Delaware: International Reading Association, 1971.

Stone, L. J., & Church, J. Childhood adolescence. New York: Random House, 1968.

Strang, R. M. An introduction to child study. New York: Macmillan, 1937.

Templeton, S., & Spivey, E. M. The concept of word in young children as a function of level of cognitive development. Research in the Teaching of English, 1980, 14(3), 265-278.

Turnbull, K. Children's thinking about . . . numbers . . . letters . . . words and sentences. Curriculum and Research Bulletin, 1971, 6(3), 98-105.

Vernon, M. D. Backwardness in reading. Cambridge: Cambridge University Press, 1960.

Vygotsky, L. S. [Thought and language] (E. Hanfmann & G. Vakar, Eds. and trans.). Cambridge: M.I.T. Press, 1962. (Originally published, 1934.)

Weintraub, S. Sex differences in reading achievement. The Reading Teacher, 1966, 20(2), 155-165.

Weintraub, S. What research has to say about learning to read. In H. M. Robinson (Ed.), Coordinating reading instruction. Glenview, Illinois: Scott, Foresman and Company, 1971.

Wilson, O. Linguistic segmentation patterns of young children. Unpublished master's thesis, University of Alberta, 1973.

APPENDICES

APPENDIX A

TESTS A, B, C, AND D OF THE CONCEPT OF A WORD TEST

TEST A

SPOKEN WORD CONSCIOUSNESS

1. Nouns: table, night, children

   Verbs: give, took, talking

   Adjective: happy

   Adverb: slowly

   Function Words: the, and, with, is, because

   Phrases: from the house, up and down, hide and seek

   For each of the words and phrases listed above, the examiner asked:

   a) "Is _____ a word?"

   b) "Why is _____ (not) a word?

2. "What is a word, really?"

   (or, "How do you know when something is a word?")

3. a) "Tell me a long word."

   b) "Why is _____ a long word?"

4. a) "Tell me a short word."

   b) "Why is _____ a short word?"

5. a) "Tell me an easy word."

   b) "Why is _____ an easy word?"

6. a) "Tell me a hard word."

   b) "Why is _____ a hard word?"

7. a) "Tell me a word that you have invented (made up) yourself."

   b) "Why is _____ an invented word?"

Question 1a—administered to 60 children.

Questions 1b, 2, 3, 4, 5, 6, 7—administered to nine of the 60 children only.

TEST B

AWARENESS OF THE SPEECH-PRINT RELATIONSHIP

1. Each child learned to recite the following poem with the help of the examiner.

> Alligator pie, alligator pie,
> If I don't get some I think I'm gonna die,
> Give away the green grass, give away the sky
> But don't give away my alligator pie.

2. The examiner modeled reading of the first line pointing to each word as he read aloud. The child did the same with the second line (Test B_1) and was then asked to locate two target words (Test B_2). Lines three and four were repeated in the same manner.
3. The examiner and child read the entire poem together with the examiner pointing to each word.
4. The child was asked to pronounce individual target words in the poem as pointed out by the examiner. (Test B3)
5. The child was asked to pronounce nine words from the poem which were presented in isolation. (Test B_4)

Administered to all 60 children.

TEST C

AWARENESS OF VISUAL WORD BOUNDARIES

1. Practice

   a) Each child drew a vertical line beside the one drawn.

   |

   b) Each child drew vertical lines between the circles.

2. a) Each child drew vertical lines between the words in the following sentence (unaided).

   Thecatandthedogplayball.

   b) The examiner read the same sentence orally and the child drew vertical lines between the words.

   Thecatandthedogplayball.

   c) The examiner read the following sentence orally and the child drew vertical lines between the words.

   (Note: The child did not see the sentence previously.)

   Theboyandthegirleatcandy.

3. Each child was shown the following sentence and was asked to explain the white spaces before and after two words selected by the examiner.

   The boy and the girl eat candy.

Question 1, 2—administered to all 60 children.

Question 3—administered to nine of the 60 children only.

TEXT D

WRITTEN WORD CONSCIOUSNESS IN SENTENCE CONTEXT

1. Each child was given the following sentence to read silently for each part of question number one.

When is the birthday party?

a) "Circle the longest word."

"Why is _____ the longest word?"

b) "Circle the shortest word."

"Why is _____ the shortest word?"

c) "Circle the easiest word."

"Why is _____ the easiest word?"

d) "Circle the hardest word."

"Why is _____ the hardest word?"

2. Each child was given the following sentence to read silently for each part of question number two.

Jack's puppy is a very friendly pet.

a) "Circle the easiest word."

"Why is _____ the easiest word?"

b) "Circle the hardest word."

"Why is _____ the hardest word?"

c) "Circle the longest word."

"Why is _____ the longest word?"

d) "Circle the shortest word."

"Why is _____ the shortest word?"

This test was administered to nine of the 60 children only.

APPENDIX B

CHILDREN'S (N = 9) EXPLANATIONS OF RESPONSES TO THE CONCEPT OF A WORD TEST

Test A (Spoken Word Consciousness)

1. a) "Is _____ a word?"

   b) "Why is _____ (not) a word?"

Word or Phrase	Pupil Number	Response Yes	Response No	Explanation
children	34*	+		"'cause children like to play"
	36	+		"'cause you have little children"
	10	+		"if you're pregnant and getting a kid, a boy or a girl, and you've got lots of children"
	44	+		"because it's a word" [Q]
	42	+		"because we're some children"
	12	+		"because there wouldn't be any children if there weren't any children . . . first come the grownups, then the children"
	24	+		"'cause there's a whole bunch of children"
	21	+		"because it's a name of a kid . . . a boy or a girl"
	54	+		"'cause your mother could say 'come here children'"
table	34	+		"'cause some people sit on a table"
	36	+		"you eat on the table"
	10	+		"if you're setting the table up for supper"
	44	+		"because you have to eat off it"

*The order of children reflects achievement scores (lowest to highest) on the Gates-MacGinitie Reading Tests (Level A, Form 1).

Word or Phrase	Pupil Number	Response Yes	Response No	Explanation
	42		+	"because it's something you eat on"
	12	+		"because if 'table' wasn't a word you'd have nothing to put your food on"
	24	+		"because you sit with a chair with it"
	21	+		"because you can eat on a table sometimes you can sit on a table"
	54	+		"because you eat at a table"
night	34	+		"sometimes it's night"
	36	+		"it's nighttime"
	10	+		"if it's nine o'clock and you want to get some fresh-air"
	44	+		"because you have to sleep in your own bedroom"
	42		+	"because it's night"
	12	+		"if there wasn't any night, it would always be night or afternoon"
	24	+		"'cause my mom says it's night"
	21	+		"because it can be nighttime and daytime"
	54	+		"because you can say 'it is night . . . time to go to bed'"
give	34		+	"people don't like that word very much"
	36	+		"give a present"
	10	+		"because if you took something and you want it back"
	44	+		"because if you went to a birthday party you have to give a present and a card on the present"

Word or Phrase	Pupil Number	Response Yes	Response No	Explanation
	42	+		"like when you give somebody something"
	12	+		"because you can give something to somebody or give them a present or anything you want"
	24	+		"like you give something to your friend"
	21	+		"because you can say I . . . can't answer it's hard"
	54	+		"'cause you can give people things"
took	34	+		"some people take something and grab it away"
	36	+		"you took a banana"
	10	+		"'cause you took something"
	44	+		"because it's three words"
	42		+	"because you're taking somebody"
	12	+		"because you took something from the store after you get home"
	24	+		"like you took a cookie"
	21	+		"I took a dish"
	54	+		"because you can say 'I took the cookie'"
talking	34	+		"'cause some people talk"
	36	+		"'cause you say something"
	10	+		"'cause you're saying something"
	44	+		"because it has five words in it, maybe, I don't know"
	42		+	"because you're talking to somebody"

Word or Phrase	Pupil Number	Response Yes	Response No	Explanation
	12	+		"because nobody could talk . . . my mom is talking"
	24	+		"like you're talking to your friend on the telephone"
	21	+		"you can talk . . . it has 'ing' in it"
	54	+		"'cause you can say 'I'm talking. Be quiet!'"
is	34	+		"'cause it goes with some other words"
	36	+		"is going to the store"
	10	+		"don't know"
	44	+		"'cause it has two words in it"
	42	+		"because it's in like a sentence"
	12	+		"because you can make up 'is' in a sentence . . . you couldn't make up a question because 'is' is always in a question"
	24	+		"like it is a giant"
	21	+		"because it doesn't say . . . don't know"
	54	+		"'cause you can say 'is the bird gone?'"
the	34	+		"some people like saying the word 'the'"
	36	+		"the people"
	10	+		"don't know"
	44	+		"because it has three words in it"
	42	+		"because that's in a sentence"
	12	+		"because you can say mommy and daddy"

Word or Phrase	Pupil Number	Response Yes	Response No	Explanation
	24	+		"The giant is here."
	21	+		"because it can have long e or short e . . . it can say two words 'the' or 'thee'"
	54	+		"because you can say 'the names are on the chairs'"
and	34	+		"some people say 'and' with their words in"
	36	+		"because you are . . . begging to go to school . . . Ann, your friend's name"
	10		+	"'cause it doesn't make sense"
	44	+		"because it has three words"
	42		+	"I forget"
	12	+		"because you can say mommy and daddy"
	24	+		"me and my friend"
	21	+		"you can put a sentence with it"
	54	+		"because . . . I have some books and some toys"
with	34	+		"because somebody wants to go with them"
	36	+		"you're with a friend"
	10	+		"because if you're with someone"
	44	+		"because it's a word" [Q] "because it has five words in it maybe"
	42		+	"that's when you're with someone"
	12	+		"because you wouldn't play with anybody because 'with' is with somebody else . . . with your toys"

Word or Phrase	Pupil Number	Response Yes	Response No	Explanation
	24	+		"like you're with your friend"
	21	+		"don't know"
	54	+		"'cause I can say 'I ride with my bike'"
because	34		+	"because people don't say those words very much"
	36	+		"because you wear a moustache"
	10	+		"because I want it back"
	44	+		"to get something because it has two words" [Q]
	42		+	"don't know"
	12	+		"because you can say 'because' . . . if there wasn't any 'because' there wouldn't be any sentence if you wanted 'because'"
	24	+		"like because your friend's away"
	21	+		"because you can . . . like you say 'because'"
	54	+		"'cause you can say 'because I like you'"
happy	34	+		"'cause some people are happy"
	36	+		"you have a happy smile"
	10	+		"'cause if you're with someone and you're going to Disney World and you're happy you're going there"
	44	+		"because . . . just like you feel inside you when you're happy"
	42		+	"because you're happy sometimes"
	12	+		"because then everybody would be sad or mad if there wasn't any happy"

Word or Phrase	Pupil Number	Response Yes	Response No	Explanation
	24	+		"because like your friends are happy or you're happy"
	21	+		"you can get happy"
	54	+		"because you can say 'I'm happy'"
slowly	34	+		"some people go slowly"
	36	+		"it means you're slowly walking"
	10	+		"because if you're walking"
	44	+		"if you walk very slow you won't get there very fast"
	42		+	"don't know"
	12	+		"because some people can do something slowly and make it up in a sentence"
	24	+		"'cause when you run slowly"
	21	+		"you can go slowly and fast"
	54	+		"'cause you can either go slowly or fast"
from the house	34	+		"because there's a bunch of houses"
	36	+		"you go in the house"
	10	+		"'cause if you're out playing and you're from the house and you gotta get something"
	44	+		"if you go very far from your own house you'll get grounded very soon"
	42		+	"I forget" [Q] "yes" [Q] "two"
	12	+		"'cause you can go away from a house . . . you can go away from your friend's house at supper time"

Word or Phrase	Pupil Number	Response Yes	Response No	Explanation
	24	+		"like when you . . . from the house . . . like you're away"
	21	+		"you can go from the house and come from the house"
	54		+	"because it's more than one word" [Q] "three"
hide and seek	34		+	"'cause it goes with some other words"
	36	+		"it's a game . . . you play it"
	10	+		"you're saying something"
	44	+		"because it's a word that starts with 'h' for hide"
	42		+	"because that's when you're playing with somebody"
	12	+		"if there wasn't any word of 'hide and seek' you couldn't play the game and have any fun"
	24	+		"'cause you play a game called that"
	21	+		"because you can hide and seek"
	54		+	"because it's three words just like 'up and down'"
up and down	34	+		"'cause some people go up and down . . . jumping up and down"
	36	+		"look up and down for your whiskers" [Q] "because they're lost"
	10	+		"'cause you're going on an elevator and you're going up and down"
	44	+		"because it's . . . when you go up the stairs and when you go down"
	42	+		"because that's in a book"

Word or Phrase	Pupil Number	Response Yes	Response No	Explanation
	12	+		"because you can go up and down a hill . . . because if there wasn't you couldn't go up and down a hill"
	24	+		"like you're going up and down on a plane"
	21	+		"you can go up and you can go down"
	54		+	"because it's three words"

2. "What is a word, really?" or "How do you know when something is a word?"

Pupil Number	Explanation
34	"because there's a lot of words around the places . . . some people like saying lots of words to people"
36	"you say something"
10	"well, if there's a human . . . if there's really a human . . . something that you say"
44	"things like words . . . begin with upper case or lower case"
42	"if you read it"
12	"because if there's a whole bunch of letters . . . and you put them together it's a word"
24	"It's in your mind."
21	"because they say words and sometimes they say letters"
54	"'cause it's just letters put together . . . I can tell when it's three words . . . it can be three words put together"

3. a) "Tell me a long word."

   b) "Why is _____ a long word?"

Pupil Number	Response	Explanation
34	"some people likes to play with your mom and likes your mom"	"because children love their mom very much"
36	"grandfather"	"because it's a word"
10	"See Pat run."	"'cause it has lots of letters all together"
44	"the that two"	"because it starts with a 't'"
42	"Elizabeth"	"it has lots of letters in it"
12	"tape recorder"	"because there's lots of letters on it"
24	"something"	"because you spell it that way . . ." [Q] "they spell it long and we spell it long"
21	"explain"	"because I don't know how many letters it has but it has eight letters or so"
54	"alligator"	"'cause it has lots of letters and it's just one word put together"

4. a) "Tell me a short word."

   b) "Why is _____ a short word?"

Pupil Number	Response	Explanation
34	"pat (with three letters in it)"	"because it only has three words in it"
36	"is"	"because it has two only" [two what?] "two letters"
10	"one ball"	"'cause it only has a few letters"
44	"that was a scary night"	"because it was a scary night I was dreaming about a scary witch"
42	"dog"	"because it only has three letters in it"
12	"me"	"because there's only two letters in 'me' and it's really short"
24	"is"	"because it's spelled with two letters"
21	"is"	"because it only has two words . . . letters"
54	"one"	"'cause it just has three letters"

5. a) "Tell me an easy word."

   b) "Why is _____ an easy word?"

Pupil Number	Response	Explanation
34	"Kathy"	"because it only has 'k' for Kathy"
36	"love"	"because it has easy spelling [Can you spell it?] "no"
10	"farmhouse"	"'cause it's only a two words"
44	"don't know"	
42	"can"	"because you know how to spell it good"
12	"Cathy"	"because there aren't that many words in it and I know how to spell it and I can sound it out . . . I only had to sound it out at the beginning of grade one"
24	"beanstock"	"because it's an easy word to figure out"
21	"egg"	"it only has three letters"
54	"farm"	"'cause it's easy to sound out and very easy to read"

6. a) "Tell me a hard word."

   b) "Why is _____ a hard word?"

Pupil Number	Response	Explanation
34	"teachers"	"some people don't know how to write teachers"
36	"witch"	"because you can't look at it . . . you'd get it wrong"
10	"people blink their eyes"	"'cause if you say it over and over you'll get it mixed up"
44	"two and three make . . . once I saw a scary movie"	"because they was talking about the hard words"
42	"toys"	"because you don't know how to spell it good"
12	"[friend's name]"	"because it's hard to spell and my dad doesn't know how to spell it"
24	"[name of school]"	"because sometimes I forget the name of it and sometimes it's hard to figure out"
21	"animals"	"because you can't guess it very well . . . some people" [Q] "because they wouldn't think of it"
54	"fantastic"	"'cause it's not all that easy to sound out and it has lots of letters"

7. a) "Tell me a word that you have invented (made up) yourself."

   b) "Why is _____ an invented word?"

Pupil Number	Response	Explanation
34	"play"	"because some people play a lot"
36	"Halloween"	"'cause it has pumpkins"
10	"strawslurp"	"'cause they do slurp"
44	"I had a book. It was called One Two Three Four Five Six"	"by my own self"
42	"play"	"I forget."
12	"potatoes"	"because I just wanted to make it up so that was the only word I was thinking of"
24	"train"	"because you ride on a train"
21	"faig"	"because you just make it up"
54	"clop"	"'cause I didn't know it when I was little"

Test C (Awareness of Visual Word Boundaries"

3. "Why are these spaces here [pointing]?"

Pupil Number	Explanation
34	"to be between these words"
36	"so they'll be easier" [Q] "so the words will be easier"
10	"for a finger space" [Q] "so you can understand the word that you are writing"
44	"so you can put lines between the words" [Q] "'cause they are after the words before you go on more"
42	"so you can read them good" [Q] "the words"
12	"so it makes sense . . . that's why you have a sentence"
24	"so the words don't get mixed up"
21	"Those are finger spaces . . . so you can understand the sentence . . . because if you didn't have finger spaces you couldn't understand it . . . it would say nothing."
54	"so you can read it . . . so you don't think it's all one word"

Test D (Written Word Consciousness in Sentence Context)

1. Sentence One (When is the birthday party?)

   a) "Circle the longest word."

      "Why is _____ the longest word?"

Pupil Number	Response	Explanation
34	"birthday"	"because it has too much letters"
36	"party"	"because it has . . . it's most longest"
10	"birthday"	"'cause it's bigger than this one [party]"
44	"birthday"	"because it is a very long one"
42	"birthday"	"because it has eight words, I mean letters, in it"
12	"birthday"	"because it's the longest word and the longest words are the hardest to sound out or read"
24	"birthday"	"because they spell it long"
21	"birthday"	"because it has eight words"
54	"birthday"	"'cause it has the most letters"

b) "Circle the shortest word"

"Why is _____ the shortest word?"

Pupil Number	Response	Explanation
34	"is"	"because it only has two letters"
36	"is"	"because it has two letters"
10	"is"	"'cause it's only two letters and the others are more than two letters"
44	"when"	"because it starts with a 'w' and ends with an 'n'"
42	"is"	"because it only has two letters in it"
12	"is"	"because that one has the least letters in it"
24	"is"	"because it's spelled with two letters"
21	"is"	"it has two words"
54	"is"	"'cause it only has two letters"

c) "Circle the easiest word."

"Why is _____ the easiest word?"

Pupil Number	Response	Explanation
34	"the"	"people say that"
36	"is"	"because I taked it in grade one"
10	"is"	"because it's only two part letters"
44	"is"	"because it's just only two words."
42	"is"	"because it only has two letters in it"
12	"is"	"because it only has two words in it . . . the smallest words are the easiest"
24	"is"	"because you can figure it out with two letters"
21	"birthday"	"because it has birth and day"
54	"is"	"'cause it only has two letters"

d) "Circle the hardest word."

"Why is _____ the hardest word?"

Pupil Number	Response	Explanation
34	"party"	"because it's at the end of the words and it's hard to think about"
36	"birthday"	"because it has . . . it's more harder because we don't take that"
10	"birthday"	"'cause some people don't know it and some people do"
44	"party"	"because it has an 'e' on the end"
42	"birthday"	"because you don't know how to spell it good"
12	"party"	"because you can't sound it out"
24	"party"	"because sometimes I can't figure it out"
21	"birthday"	"because it has eight words and I couldn't read it . . . some people"
54	"birthday"	"'cause it's the hardest one to sound out"

2. Sentence Two (Jack's puppy is a very friendly pet."

   a) "Circle the easiest word."

      "Why is _____ the easiest word?"

Pupil Number	Response	Explanation
34	"pet"	"because people have dogs and some people say 'get out'"
36	"a"	"because it has one letter"
10	"a"	"because it's only one letter in the sentence"
44	"Jack's"	"because it's a name of a boy"
42	"a"	"because it only has one letter in it"
12	"pet"	"because I already know it and it's got the word that we practised already"
24	"Jack's"	"'cause it's a name and I can figure it out"
21	"a"	"because it's only one word and it's an /æ/ sound"
54	"a"	"it only has one letter"

b) "Circle the hardest word."

"Why is _____ the hardest word?"

Pupil Number	Response	Explanation
34	"very"	"because people don't say that word"
36	"puppy"	"'cause it has more letters in there"
10	"friendly"	"'cause it's lots of letters"
44	"friendly"	"'cause it's very hard to say"
42	"friendly"	"because you don't know how to spell it good"
12	"friendly"	"because it has the most words in it"
24	"friendly"	"because I don't know what it says"
21	"friendly"	"it has eight words"
54	"friendly"	"because it has eight letters"

c) "Circle the longest word."

"Why is _____ the longest word?"

Pupil Number	Response	Explanation
34	"friendly"	"because it has too much letters"
36	"friendly"	"it has more hard . . . it's more hardest than the other ones"
10	"friendly"	"'cause it's a long word and it has eight letters"
44	"very"	"'cause it has an 'r' in the middle of it"
42	"friendly"	"because it has lots of letters in it"
12	"friendly"	"because it has the most words in it"
24	"friendly"	"because it has too many letters"
21	"friendly"	"it has eight words"
54	"friendly"	"'cause it has the most letters"

d) "Circle the shortest word."

"Why is _____ the shortest word?"

Pupil Number	Response	Explanation
34	"a"	"because it only as an /æ/"
36	"is"	"because it has two letters"
10	"a"	"'cause it's only one letter"
44	"pet"	"because it's pet (p . . . e . . . pet)"
42	"a"	"because it only has one letter in it"
12	"a"	"because it only has one word"
24	"a"	"because it is just an 'a'"
21	"a"	"it only has one word"
54	"a"	"'cause it only has one letter"

APPENDIX C

CHILDREN'S (N = 60) SCORES ON THE GATES-MACGINITIE READING TESTS AND THE CONCEPT OF A WORD TEST

Gates-MacGinitie Reading Tests (Level A, Form 1, 1979)

	Males				Females			
	Pupil Number	Vocabulary (Total Possible = 45)	Comprehension (Total Possible = 40)	Total (85)	Pupil Number	Vocabulary (Total Possible = 45)	Comprehension (Total Possible = 40)	Total (85)
LAR*	01	16	16	32	31	13	7	20
	02	19	9	28	32	19	12	31
	03	13	0	13	33	18	7	25
	04	11	14	25	34	5	3	8
	05	19	14	33	35	17	7	24
	06	15	11	26	36	13	13	26
	07	13	10	23	37	21	9	30
	08	13	12	25	38	7	3	10
	09	18	15	33	39	16	14	30
	10	19	9	28	40	19	9	28
AAR**	11	29	17	46	41	31	15	46
	12	34	32	66	42	33	19	52
	13	23	15	38	43	33	23	56
	14	24	18	42	44	25	14	39
	15	25	29	54	45	30	23	53
	16	34	29	63	46	18	19	37
	17	22	16	38	47	34	23	57
	18	26	15	41	48	16	27	43
	19	38	30	68	49	39	29	68
	20	29	27	56	50	28	20	48

* low achieving readers
** average achieving readers

Gates-MacGinitie Reading Tests (Level A, Form 1, 1979) (continued)

	Males				Females			
	Pupil Number	Vocabulary (Total Possible = 45)	Comprehension (Total Possible = 40)	Total (85)	Pupil Number	Vocabulary (Total Possible = 45)	Comprehension (Total Possible = 40)	Total (85)
HAR***	21	42	36	78	51	35	37	72
	22	38	36	74	52	40	39	79
	23	39	37	76	53	40	33	73
	24	38	33	71	54	44	39	83
	25	40	37	77	55	39	33	72
	26	43	37	80	56	40	35	75
	27	42	34	76	57	39	30	69
	28	43	37	80	58	35	36	71
	29	42	35	77	59	36	38	74
	30	44	25	69	60	43	33	76

*** high achieving readers

Test A (Spoken Word Consciousness)

Males		Females	
Pupil Number	"Is _____ a word?" (Total possible = 16)	Pupil Number	"Is _____ a word?" (Total possible = 16)
01	12	31	13
02	12	32	11
03	8	33	13
04	11	34	12
05	11	35	7
06	13	36	13
07	13	37	10
08	11	38	12
09	13	39	13
10	12	40	14
11	14	41	14
12	13	42	6
13	13	43	13
14	13	44	13
15	13	45	13
16	14	46	14
17	12	47	14
18	11	48	12
19	16	49	13
20	14	50	13
21	13	51	13
22	13	52	8
23	12	53	13
24	13	54	16
25	12	55	13
26	16	56	15
27	13	57	9
28	13	58	13
29	13	59	14
30	13	60	15

Test B (Awareness of the Speech-Print Relationship)

Males						Females					
Pupil Number	B_1*	B_2	B_3	B_4	Total Score (52)	Pupil Number	B_1	B_2	B_3	B_4	Total Score (52)
01	10	4	5	5	24	31	12	5	6	6	29
02	11	6	6	6	29	32	26	8	6	6	46
03	0	1	0	0	1	33	25	8	9	9	51
04	2	4	3	2	11	34	7	2	4	3	16
05	24	8	9	9	50	35	19	7	7	8	41
06	24	8	8	8	48	36	4	4	5	4	17
07	14	7	9	7	37	37	13	8	5	6	32
08	25	8	7	7	47	38	24	8	9	9	50
09	24	8	9	9	50	39	26	8	9	9	52
10	18	6	8	7	39	40	13	7	5	8	33
11	26	7	8	9	50	41	26	8	9	9	52
12	26	8	9	9	52	42	25	8	9	9	51
13	21	8	9	9	47	43	24	8	9	9	50
14	25	8	9	9	51	44	26	8	7	7	48
15	25	8	9	9	51	45	26	8	9	9	52
16	25	8	9	9	51	46	25	8	9	9	51
17	21	7	6	6	41	47	26	8	9	9	52
18	25	8	9	9	51	48	25	8	9	9	51
19	26	8	9	9	51	49	20	8	9	9	46
20	25	8	9	9	51	50	25	8	9	9	51
21	26	8	9	9	52	51	26	8	9	9	52
22	26	8	9	9	52	52	25	8	9	9	51

*B_1 - Pointing to Words as One Read Aloud (total possible = 26)
B_2 - Locating Individual Target Words in Context (total possible = 8)
B_3 - Pronouncing Individual Target Words in Context (total possible = 9)
B_4 - Pronouncing Individual Target Words in Isolation (total possible = 9).

Test B (Awareness of the Speech-Print Relationship) (continued)

Males						Females					
Pupil Number	B_1	B_2	B_3	B_4	Total Score (52)	Pupil Number	B_1	B_2	B_3	B_4	Total Score (52)
23	24	8	9	9	50	53	25	8	9	9	51
24	26	8	9	9	52	54	26	8	9	9	52
25	26	8	9	9	52	55	24	8	9	9	50
26	25	8	9	9	51	56	25	8	9	9	51
27	26	8	9	9	52	57	26	8	9	9	52
28	26	8	9	9	52	58	25	8	9	9	51
29	26	8	9	9	52	59	25	8	9	9	51
30	24	8	9	9	50	60	26	8	9	9	52

Test C (Awareness of Visual Word Boundaries)

Males					Females				
Pupil Number	Sentence One (Total possible=7)	Sentence Two (Total possible=7)	Sentence Three (Total possible=7)	Total (21)	Pupil Number	Sentence One (Total possible=7)	Sentence Two (Total possible=7)	Sentence Three (Total possible=7)	Total (21)
01	3	7	5	15	31	4	4	2	10
02	0	0	0	0	32	7	3	3	13
03	0	0	0	0	33	1	7	3	11
04	0	0	0	0	34	0	0	0	0
05	7	4	4	15	35	0	4	7	11
06	0	5	4	9	36	0	0	1	1
07	0	0	1	1	37	0	4	2	6
08	3	7	5	15	38	2	7	2	11
09	4	7	7	18	39	0	0	7	7
10	0	0	1	1	40	0	0	0	0
11	1	7	4	12	41	7	7	7	21
12	7	7	7	21	42	4	4	5	13
13	0	0	0	0	43	7	7	7	21
14	6	5	7	18	44	4	1	2	7
15	7	7	7	21	45	4	7	5	16
16	5	5	7	17	46	0	1	2	3
17	0	0	0	0	47	7	7	7	21
18	0	0	0	0	48	7	7	7	21
19	4	7	7	18	49	5	4	7	16
20	5	5	7	17	50	0	0	0	0
21	0	7	7	14	51	7	7	7	21
22	7	7	4	18	52	7	7	7	21
23	5	7	5	17	53	7	7	7	21
24	7	7	7	21	54	7	7	7	21
25	7	7	7	21	55	7	7	7	21

Test C (Awareness of Visual Word Boundaries) (continued)

Males					Females				
Pupil Number	Sentence One (Total possible=7)	Sentence Two (Total possible=7)	Sentence Three (Total possible=7)	Total (21)	Pupil Number	Sentence One (Total possible=7)	Sentence Two (Total possible=7)	Sentence Three (Total possible=7)	Total (21)
26	7	7	7	21	56	7	7	7	21
27	2	7	7	16	57	7	7	7	21
28	7	7	7	21	58	7	7	7	21
29	4	5	7	16	59	4	7	7	18
30	7	7	4	18	60	7	7	7	21